

THE IRON AGE

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Active Year at Bureau of Standards

*Staff Investigates Corrosion, Wear, Endurance and Quality
of Various Steels and Non-Ferrous Alloys
and Studies Foundry Sand*

BY DR. H. W. GILLET*

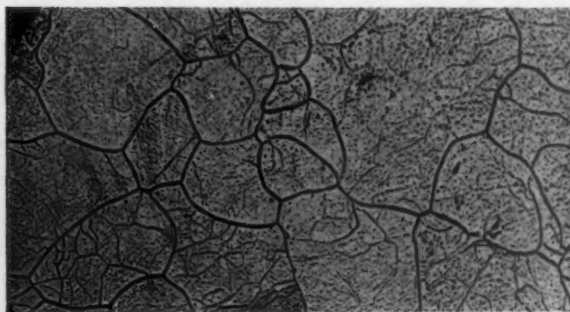
PRINCIPLES that guide the choice of metallurgical research problems which are to be supported by public funds, also the methods and equipment used in the work of the Bureau of Standards, Washington, have been described in articles in THE IRON AGE Aug. 20 and 27, 1925, and Sept. 9, 1926. As a rule, problems of sufficient magnitude to deserve study in a Government laboratory are too complex for completion in twelve months, so the nature of the work does not change radically from year to year. In reporting here-

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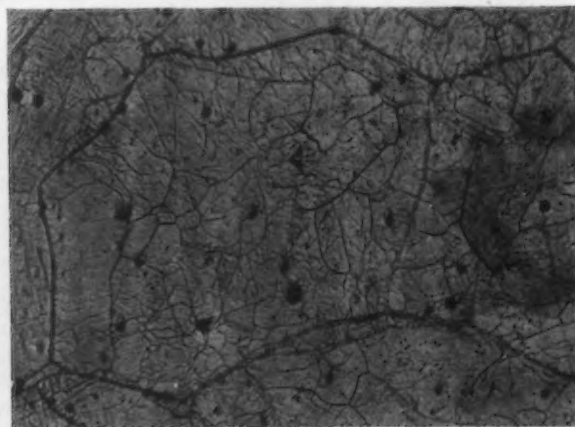
with the work of the metallurgical division for the fiscal year closed June 30, 1927, attention will be confined to the "high spots" of the research projects, and chiefly to those dealing with iron and steel. Several other divisions of the bureau do much work of metallurgical interest, but space forbids comment on it in this report.

The extent of the work which may be done at any institution is to a degree dependent upon the funds available. Here it may be stated that in round figures metallurgical division funds for 1926-1927 were \$97,500 and funds transferred from other Government departments

Unusual features of ferrite in commercially pure iron; etched with 5 per cent alcoholic picric acid



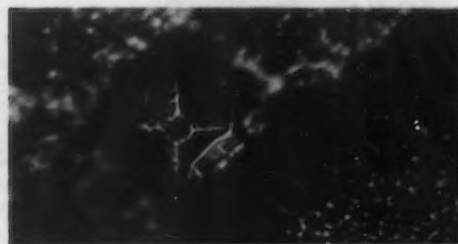
Open-hearth iron showing "veining" within the alpha grains. 100 diameters



Electrolytic iron containing 1 per cent Al. Note the coarse network which records the pre-existing delta grain structure, also the veining in the existing alpha grains. 50 diameters



Open-hearth iron, polished and heated in hydrogen for 100 hours at 750 to 800 deg. C. 500 diameters



Etching figure on a cleavage face of ferrite. 800 diameters

were \$10,000. If general bureau overhead be included, about \$130,000 of public funds was utilized in the work of the metallurgical division. This total does not include expenses of other divisions on joint projects, or of research associates or fellows on cooperative work.

In order to show the relative effort put on the different research projects, there is given a percentage figure showing what portion of the funds administered by the division was put upon that project in the past year. Thus, each per cent stands for a total outlay of around \$1,300.

Fundamental Properties of Metals

The starting point, in consideration of the properties of industrial metals and alloys, is the determination of the properties of the pure metals.

Notwithstanding the antiquity of iron and the vast amount of work done on it, there is still much that is unknown about its properties. Some of the obscure metallographic properties of iron have been studied (0.60 per cent) in cooperation with a research fellow from the Swedish American Foundation. The structure of the delta grains which exist just after the metal freezes and before it changes to austenite may be traced in many specimens of ferrite at room temperature. Interesting twinned crystals and etching pits as well as peculiar veinings in the microstructure have been revealed in this work.

Studies on nickel in cooperation with the International Nickel Co. and other divisions of the Bureau (0.65 per cent) have prepared fused metal with purity of 99.94 per cent, probably higher than hitherto reached.

Pure thorium, made available by the cooperation of the Westinghouse Lamp Co. and the Kemet Laboratories, is being studied (0.35 per cent) to determine its melting point and its lattice constants.

Progress has been made, in cooperation with the chemistry division, in work on platinum metals (1.60 per cent), especially in the purification, melting and working of pure rhodium. The melting and working of platinum and its alloys for use by the Bureau is now being successfully carried out, at a considerable saving. The successful substitution of rhodium for platinum in resistors for high-temperature electric furnaces used in much experimental work at the Bureau would save still more money.

In melting extremely pure metals, contamination from the crucible has to be avoided. Pure magnesia, suitably bonded, serves well for iron and nickel, but zirconia crucibles are better for melting platinum. As an outgrowth of previous experience, a satisfactory electric furnace lining was developed for the furnaces used in making special steels at the Bureau, where the service is severe because of intermittent use (0.50 per cent). The behavior of rutile as a bond for magnesia refractories, brought to the attention of the Bureau by the Metal & Thermit Co., is also being studied, and is to be more thoroughly examined in cooperation with the Washington Navy Yard.

Further work (0.30 per cent) on fundamental properties is that done in cooperation with the division of weights and measures on the density of hot rolled carbon steels. The decrease in density of carbon steels on quenching and the increase on tempering has also been determined. Similar work is in progress on alloy steels and on cold worked carbon steels. Some work (0.50 per cent) was done on the solubility of carbon in pure iron. Still another project in this class is work on quenching media and the hardening properties of steel (1.80 per cent), which is being continued.

Metallurgical Research Methods

A study of the technique of metallographic polishing with special reference to automatic polishing methods is to be undertaken. Similar work on the technique of X-ray spectrographic examination of metals (2.65 per cent), including the sensitivity of the method, the usefulness of various types of specimens and the application of the densitometer to the study of the X-ray films has been under way for several years. The properties of pure metals at the temperature of liquid hydrogen are also to be studied.

Gases in Metals

Pioneering work has been done by the Bureau in the analysis of steel for oxygen and hydrogen (1.40

per cent). The use of solid samples in the vacuum fusion method has consistently been advocated by the Bureau rather than the use of drillings, which introduces errors due to air adsorbed on the surface. This is now admitted to be an essential precaution by German investigators who previously took the opposite view. To make possible a comparison of different methods of analysis for oxygen, analyzed samples have been distributed to English, Swedish and German metallurgists working on gases in metals.

The vacuum fusion method has also been applied to the determination of nitrogen in steels (1.10 per cent), the nitrogen evolved being caught in calcium vapor, and the calcium nitride then analyzed for nitrogen. The General Electric Co. sent a guest worker to the Bureau to study our methods, preparatory to applying them to the determination of nitrogen in silicon transformer steel.

Another phase of the work on gases in metals deals with the determination of gases in blow holes or those dissolved but not combined, and which are released on drilling or grinding under mercury. Still another extensive phase, just being started, studies the solubility by direct observation of the behavior of the gas when confined over the molten metal (2.15 per cent).

Corrosion of Aircraft Metal

In studying accelerated corrosion (3.40 per cent) the electrolytic method of test, as prescribed by the cooperating American Society of Testing Materials Committee, was found useless. The conclusion was reached that electrolytic study at sufficiently wide range of low current densities offers a promising method for the prediction of behavior under corrosion.

Comparison of the results of various cooperating laboratories in other types of corrosion tests show large variations, the chief cause of which is probably a variable degree of aeration and consequent oxygen content.

Accelerated corrosion of zinc-coated materials, carried out for the American Society for Testing Materials (3.30 per cent) indicates that the salt spray test is unsatisfactory, since only material so bad as to be detected on cursory inspection fails within a period of 10 to 20 weeks. The "simulated atmospheric" test, carried out in an atmosphere of CO₂ and SO₂, offers more promise.

The intercrystalline corrosion and embrittlement of duralumin (9.85 per cent), which must be avoided if aircraft, especially those exposed to salt air, are to have reasonable life and the safety of pilot and passengers is to be assured, is not materially avoided by using extra pure materials or by alteration of composition within limits set by requirements of strength. Embrittlement is very materially diminished by rapid quenching in cold water; no sign of embrittlement is shown after a year's exposure at seaside with no protective coating whatever.

Since unalloyed aluminum is not subject to intercrystalline embrittlement, coatings of metallic aluminum over duralumin were studied. Metal-sprayed aluminum coatings gave maximum protection in laboratory tests and a year's exposure test shows both the coating and the duralumin beneath to be in good condition. In the last few months the Aluminum Co. of America has succeeded in producing duralumin sheet coated with aluminum by another process and their independent experiments on this type of material corroborate the Bureau's previous tests.

Oxide coatings, such as those obtained by anodic treatment in chromic acid, give some protection, especially if oiled. Various varnish and pigmented coatings offer some protection, varying in the length of time for which they are effective and in the weight added.

The avoidance of the embrittlement of duralumin therefore seems to be in a fair way toward solution, if not already solved. There is indication that X-ray spectrographs, taken by the pin-hole method, may offer a sensitive means of detecting the progress of intercrystalline embrittlement, and this is being studied in detail. The effect of stress upon corrosion is also to be examined.

Scarcely less important than the problem of corrosion of metals is that of wear. For several years the Bureau has been steadily increasing its studies on the

fundamentals of wear and wear-resistance of metals (2.30 per cent), and has published several papers in this field.

Work in hand or planned refers to abrasive wear by sand blasting, tumbling and lapping, and to metal-to-metal wear of steels, cylinder irons, and of babbitt metals, by various methods of tests. The wear problem is so complex and methods of determining wear so far from standardized that progress, in order to be sure,

iron. Chromium-aluminum steel gages given a nitride coating by heating in ammonia approach the chromium plated gages in wear-resistance, and excel other gage materials.

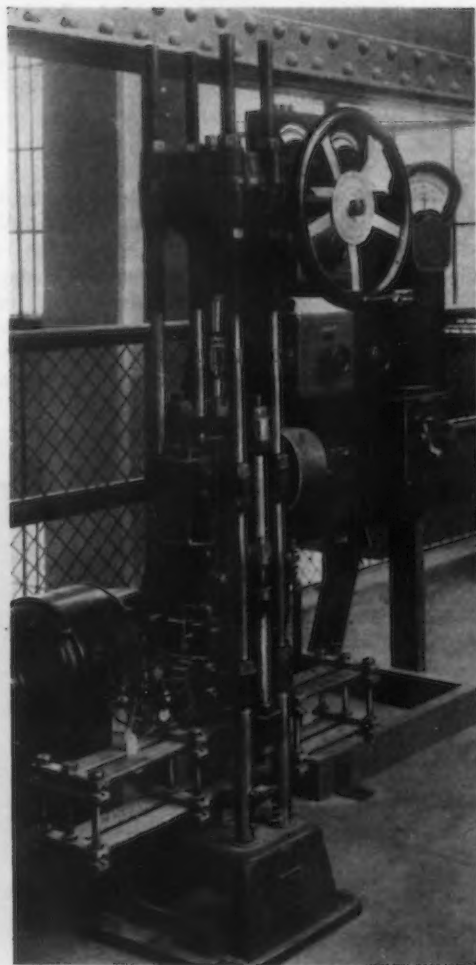
The wear of chill-cast and sand-cast leaded railroad bearing bronzes has been studied (3.10 per cent) in cooperation with a research associate from the Magnus Metal Co. Wear, impact and other properties at room temperature and at operating temperatures are



EXPOSURE tests of sheet duralumin (above) are made at various places. Material is in the form of tension bars, and one bar of each set is removed at stated intervals and tested in tension to show, by means of comparison with similar bars kept in a DRY atmosphere in the laboratory, to what extent the tensile properties have been affected by the atmospheric corrosive agencies.

Haigh endurance testing machine (at right). Repeated tension and compression thrown into specimen by alternating the electric field in underhung magnets. Delicate extensometers verify the correct axial loading in test piece.

(Below) Apparatus used for high-temperature impact tests.



has to be slow. Cursory tests may be quite misleading. Brief tests on some wear problems have been made by guest workers at the Bureau, and this cooperative work resulted in the decision of the cooperating firm to install wear-testing apparatus of its own for more exhaustive study of the alloys with which it deals.

Besides the more fundamental work on general methods of wear testing, the Bureau has studied the wear-resistance of plug gages (3.80 per cent) and of railroad bearing bronzes in some detail.

Chromium-plated plug gages, previously reported as superior for gaging hardened steel, are also found superior in gaging an aluminum piston alloy, and cast

being studied. The specifications for railroad bearing bronzes are widely variant, a situation which shows a lack of understanding of the properties of bearings needed for a given class of service.

High-Temperature Properties of Metals

High-temperature mechanical tests (3.65 per cent) oriented with those of research committees of the American Society of Mechanical Engineers and American Society for Testing Materials have been directed

(Concluded on page 377)

Fabricate Bridge Crane by Welding

Rigidity Secured by Use of Arc Process on Bridge Members—
Lighter Trolley Permits Use of Smaller Travel Motor

WELDING was used for making all joints in the construction of a 10-ton, 60-ft. span electric traveling crane recently built by the Cleveland Crane & Engineering Co., Wickliffe, Ohio. The crane was designed for arc welding, in order to secure the greatest possible rigidity with the same weight and to incorporate new features, including roller bearings, to increase the speed of acceleration of both the trolley and bridge travel.

The bridge girders are of the "fish belly" box type, each girder being made of two webs and top and bottom cover plates. The cover plates are welded to the webs by a fillet bead of welding rod running the entire length of the girder. A slight difficulty was caused by expansion, which tended to distort the plates, but this was overcome by using the step-back method of welding a short distance at a time and allowing the metal to cool before resuming welding at that point. The weld makes the two webs and the top and bottom plates an integral box section of steel. However, this joint is not depended upon to take the entire stress in the girder, it being simply an auxiliary connection to give maximum rigidity.

Greater strength is secured by welding a round reinforcing bar along the webs and cover plates in each of the four corners of the box section, as is shown in the cross-sectional view. This weld is continuous for 60 in. from each end of the girder and over the remaining distance the bar is tack-welded to the web and cover plate at intervals of 3 in. by welds 4 in. long. This construction gives a three-point connection between the webs and cover plates. The area of the bar section is equivalent to that of the angle section which

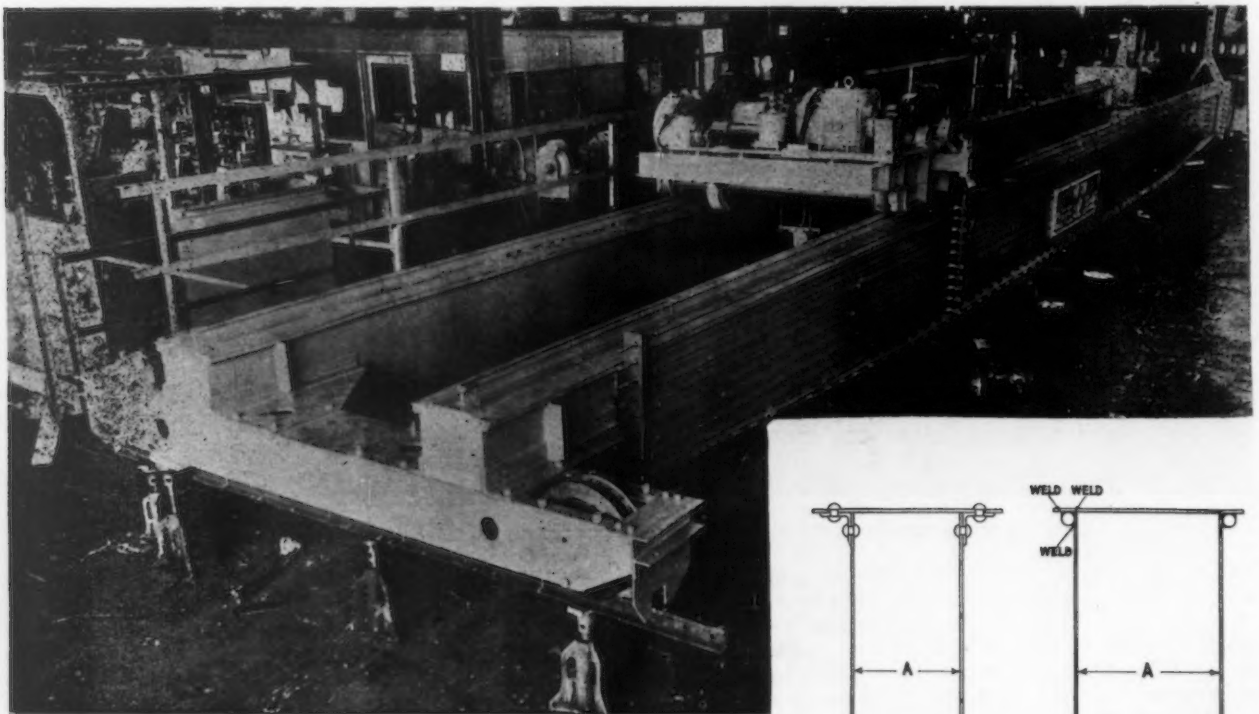
ordinarily would be used in riveted construction. As the stress in the bar is pure tension on the bottom of the girder and compression at the top of the girder, it is pointed out that the round section is at least as efficient as the angle section. Following the common method of constructing a riveted, box-section crane girder, reinforcing angles are used to fasten the webs to the cover plates by means of a single row of rivets. This construction gives a two-point connection between the webs and cover plates.

The welded crane girder is said to offer greater resistance to side strains than a riveted girder of the same weight, because the webs can be spaced farther apart while using cover plates of the same width. This wider spacing is possible because the reinforcing bar, while it has the same cross-sectional area, occupies less space than the reinforcing angle and consequently can be located nearer the edge of the conveyor plates.

Flange Angles Dispensed With

The bridge girders are reinforced by the customary diaphragms spaced at suitable intervals. The diaphragms are joined to both webs and to the top cover plate by fillet welds, thus dispensing with flange angles. These welds, it is estimated, give a strength slightly greater than that of the plates themselves. A slight saving in weight is effected by eliminating the flange angles on the reinforcing diaphragms, but this is not of special importance. The chief point of interest in this connection is that the diaphragms are rigidly attached to the cover plates as well as to the webs.

As the bridge was designed with a view to securing the greatest rigidity possible without changing the



The Complete Crane Assembly Before Erection. In the foreground the construction of the end truck may be noted

In the Sectional Views, to the Right, Fig. 1 Shows the Method of Constructing a Riveted Box-Section Crane Girder, and Fig. 2, the Three-Point Welded Construction

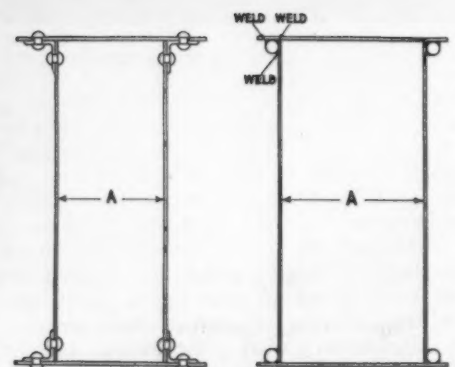
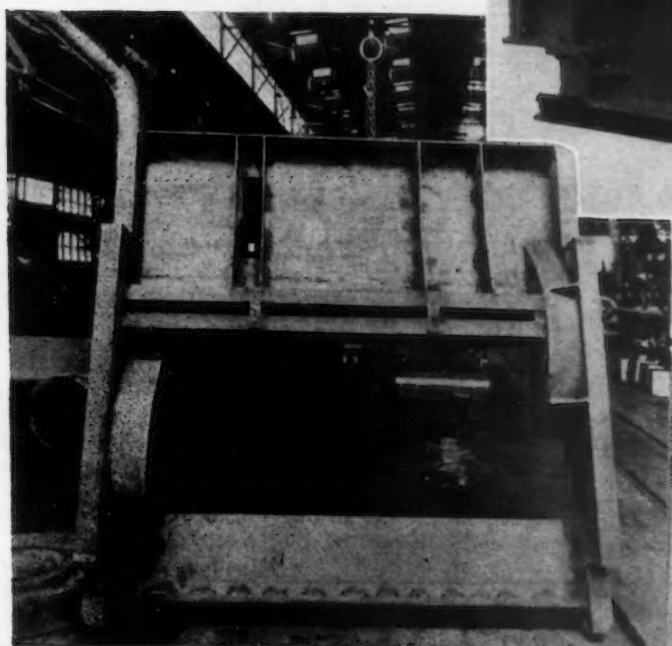
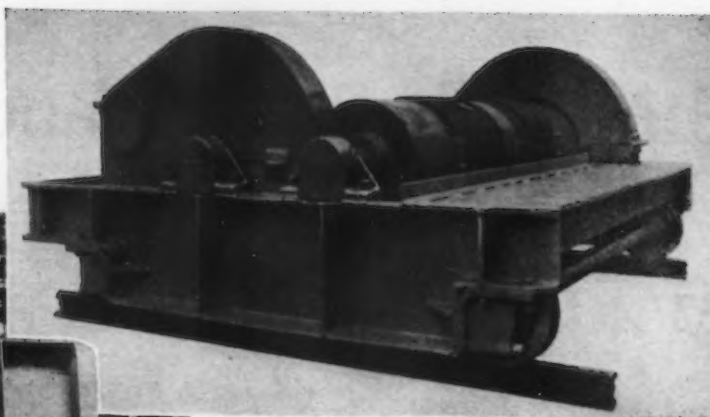


Fig. 1

Fig. 2

At the Right, the Completed Welded Trolley. This shows the reinforcement under bearing points



At the Left, Bottom View of Trolley, Showing Method of Tying Side Frames and the Reinforcement Under the Top Plate

weights customary for a crane of this size, no attempt was made to take advantage of any possible saving in the weight of the plate sections by the use of welded construction. In other words, plates of the same thickness were used as would have been employed for riveted construction, in which the weakest point is along the line of rivet holes. It is stated that a test under a 100 per cent overload showed less deflection than normally encountered in rivet construction, indicating that the objective was attained.

Notch Construction Used in Attaching End Trucks

The end trucks are of the box-section type, the side members being of standard rolled sections and connected by top and bottom plates and having stiffening diaphragms, all joined by welding. Usually bridge girders are bolted to the truck ends on which they rest. These bolts are in shear, and any movement between the girders and end trucks tends to loosen the bolts. This tendency is avoided in the design of this crane by what is known as notch construction. The girders are fastened both to the top and to the sides of the end trucks, so that half the bolts are in tension, insuring rigidity.

The trolley frame is built entirely of structural steel and all joints are welded. The side members are standard channels. The bed for the hoist and trolley travel mechanism is made of steel plates, with reinforcing plate sections welded under the bearing points to secure positive alinement of the shafts and bearings.

Welding Said to Result in Greater Strength

Wherever pads and bosses are required to form seats for the hoist and travel mechanism, these are made by welding sections of plate to the trolley frame. It is stated that the greatest advantage of welded construction was found in the trolley, because there was considerable saving in weight and at the same time greater strength and rigidity were obtained. Such other parts as lineshaft brackets, cross-walk supports and bridge-driving machinery brackets are also welded to the members to which they are joined.

The bridge wheels and the trolley travel and hoist mechanism are equipped with roller bearings. It is

stated that the reduced weight of the trolley and the use of roller bearings on the trolley wheels made it possible to use a smaller trolley travel motor and to get faster trolley acceleration than with the trolley of the standard riveted type. The elimination of the laying out of rivet holes, punching and reaming and the driving of rivets, as well as some saving in material, were factors in reducing manufacturing costs.

July Building Contracts Below June

Building contracts during July in the 37 States east of the Rocky Mountains amounted to \$534,399,900, according to the F. W. Dodge Corporation. This is a decline of 16 per cent from the record total of the previous month, but is a 3 per cent increase over the July figure last year. The area covered in the returns represents approximately 91 per cent of the country's construction volume.

The July figure brought the total of construction started during the first seven months of the year to \$3,722,383,200, an increase of 2 per cent over the first seven months of 1926. July contracts include \$186,935,100 for residence buildings, \$143,915,800 for public works and utilities, \$83,010,100 for commercial buildings, \$36,433,600 for educational buildings, and \$30,302,900 for industrial works. Contemplated new work last month amounted to \$692,959,700, a decrease of 5 per cent from the June total and an increase of 3 per cent over the July figure last year.

July contracts in New York State and northern New Jersey showed a drop of 10 per cent from the preceding month, but were 42 per cent ahead of the July, 1926, total. Contracts in New England were 13 per cent below June and 24 per cent behind July of last year. The Middle Atlantic States had the highest July on record, an increase of 10 per cent over July, 1926, but a 27 per cent decrease from June. The July figure in the Pittsburgh district was a decrease of 12 per cent from both the June, 1927, and July, 1926, totals. Contracts in the Central West were also below the totals for the previous month and the corresponding month last year, but in the Northwest there was an increase of 36 per cent over June. The South-eastern States total was 13 per cent under June and 25 per cent under last July. In Texas the July total was approximately the same as in June, but was 17 per cent ahead of last July.

Studebaker Axles and Crank Shafts

Normalized and Hardened in Continuous Furnaces,
Oil Fired and with Recuperators, Giving
42 Per Cent Gross Efficiency

BY F. W. MANKER*

CRANK shafts and front axles are among the most important parts of the modern automobile. The former must convert the explosive power behind the piston into a succession of overlapping impulses, driving the car ahead smoothly and without vibration. The axle bears with the steering mechanism the major responsibility for safety; if it should fail only good luck avoids a serious accident.

Under these circumstances the utmost care is given these parts during manufacture. Heat-treated alloy steel is required—on the crank shaft alone close to 85 separate operations are performed between the bar stock and the assembled motor. Studebaker crank shafts were the first to be finished all over. The rough stock is $4\frac{7}{8}$ in. diameter, 3 ft. long and weighs 194 lb. Finished it weighs 124 lb. and balances within 0.002 in.

The first operation in the manufacture of either crank shaft or front axle is drop forging, and the forge shop at the Clark Avenue, Detroit, plant is equipped for both. It is completely equipped with steam hammers, power presses, shot blasts, forging furnaces, heat treating units, overhead conveyors and other auxiliaries for economical mass production of 600 cranks or 625 axles per day of three shifts.

Rough stock is first heated in a billet furnace 25 ft. long, 6 ft. wide and 5 ft. high, which will hold 55 billets on an inclined hearth. As the billets roll through they receive their heat from two oil burners located close to the discharge end.

The hot stock is swung to a 12,000-lb. Erie steam hammer, which holds a blocking die, and is shaped up for the finishing hammer. Reheated in a furnace which is ten feet square and five high, fired with two burners to a side, the blocked shaft is put into a single impression die on another 12,000-lb. hammer and is finished. From there it is swung into a power press and the flash trimmed off. A head or flange for the fly-wheel is then put on in a 5-in. Acme header after heating in another furnace of the same dimensions and design as the preceding.

An overhead traveling crane spans the width of the forge shop for handling material in bulk, while an overhead monorail and several hand operated air lifts aid in handling the stock in and out of the furnaces.

That section of the building where the front axles are made is similarly equipped. After the stock is sheared to length, one end is heated in a furnace and upset in a 5-in. National header for the yoke section, the flash trimmed off in a press and the high spots ground off. The same operations are next performed on the other end. The axle is then reheated in another furnace and the yoke section forged under a 10,000-lb. steam hammer. The other half is then heated and the operation repeated. Reheated in still another furnace it is restruck in a 1000-lb. hammer for forging the spring pads and then put directly into a press which stretches it to correct length. Another press trims the flash, and the yoke section is ground and high spots removed. The front axles then receive the same heat treatment as the crank shafts.

Heat treatment on rough forgings consists of a normalizing heat, followed immediately by a hardening heat and an oil quench. Heating is done in special furnaces designed and built by Surface Combustion Co.,

with automatic control both as to temperature and heating period. They also utilize waste heat through recuperation. The normalizing furnace is 25 ft. long, 7 ft. wide and 6 ft. high, and is heated with three oil burners firing under the hearth from front to rear.

To transfer the heat from the flame into the chamber most effectively the combustion ducts below the hearth are covered with carborundum tile, which is heated to incandescence, and from which heat radiates into the stock. Waste heat leaves through a flue located in the arch at the charging end and is used in a recuperator to preheat the air for combustion.

Axles or shafts ride through the furnace on riders or shoes, guided by rails placed lengthwise through the furnaces. To fit materials of various lengths four of these rails are provided, each made of channel-shaped heat-resisting metal supported on I-beams. Forgings are pushed through the furnace with a mechanical pusher, operated with a Stromberg time clock, thus insuring the exact heating period for the work. There is also an automatic temperature control provided so the normalizing heat (1650 deg. Fahr.) is maintained at all times. The tracks protrude some 6 ft. from the charging end of this furnace. Cranks are brought in on trucks and loaded on the tracks one by one by the aid of an overhead monorail hoist.

After being discharged from the far end of the furnace the work is allowed to cool in air to 1000 deg. Fahr. and is immediately recharged into the hardening furnace.

The hardening furnace is similar in design to the normalizing unit and is placed immediately alongside. The charging end is next the discharge end of the other, so a minimum of travel is necessary between the two. At the discharge end it is equipped with an airtight heat seal. The furnace is 21 ft. long, 7 ft. wide and 8 ft. high over all. It is provided with a charging table and mechanical pusher like the normalizing furnace, but instead of a discharge table it has a chute leading below the surface of a quenching tank. Combustion is accomplished by means of low-pressure oil burners; air from these burners is preheated in recuperators. The requisite temperature is maintained by a controller operating in conjunction with an oil-air flow valve. As in the normalizing furnace the heating period is controlled through a Stromberg time clock on the pushing mechanism.

Combustion in these two units is maintained at a high efficiency by means of a firing chamber of a recirculating type, used in conjunction with preheated air. A uniform temperature is obtained in the heating chamber by the use of carborundum arch tile over the combustion chamber as previously described, by recirculating the products of combustion, and by correctly spacing the flues between the combustion and heating chambers. The recirculation of a portion of the spent flue gases with the products of combustion, as they issue from the combustion tunnel, further reduces the possibility of overheating at any point, thus increasing the life of the firebrick in the combustion chamber, as well as the quality of the work performed.

The quench tank, which is 17 ft. long, is located below and at the discharge end of the hardening furnace. The hot forgings are discharged into it automatically through an air seal or chute which extends from the furnace into the oil at an angle of 45 deg.

*Vice-President Surface Combustion Co., New York.

CRANK Shaft
Being Blocked
(at right) on
Hammer in Fore-
ground; Reheating
Furnace in Cen-
ter; Finish For-
ging and Headers
in Rear



AFTER Heating
(below) to
Hardening Tem-
perature, Axles
Drop Through
Chute Into Quench-
ing Tank, from
Which They Are
Withdrawn by
Traveling Pan
Conveyor, and De-
livered to Charg-
ing Table of Draw-
ing Furnace at
Left



CHARGING End
(at Right) of
Continuous Nor-
malizing Furnace.
Blocks for carry-
ing axles through
furnace piled on
floor in center.
Pusher mechanism
below table



An apron conveyor, starting from the bottom of the chute, removes the work and delivers it to the charging table of the drawing furnace.

A test on the normalizing furnace showed very conclusively the high efficiency and fuel economy obtained in this type of heat treating unit. It had been up to heat for two and a half hours before starting the test, and in production on Studebaker "Big Six" crank shafts, weighing 143 lb. each. Each crank was mounted on two rail blocks or shoes, each weighing 11½ lb. The cranks were pushed into the furnace at several rates, varying from one every 2 min. and 10 sec. to 2 min. and 30 sec. The rate of oil consumption, when the burners were at the high setting, ranged from 25 to 33 gal. per hr., but during the low setting this was reduced to below 12 gal. per hr. The maximum air pressure was 13 oz., but the adjustment for the low setting was approximately 5 oz. Cold atomizing air was maintained at full pressure at all times. The area of the main air port is about 2.28 sq. in., while that of the cold atomizing air port is approximately 0.44 sq. in.

The oil used tested 20.3 deg. Baumé at 60 deg. Fahr., with calculated heating value of 147,700 B.t.u. a gal.

The test lasted 4 hr. 43 min., in which time 115 cranks were treated to 1650 deg. Fahr., with 79 gal. of oil. Efficiency may be computed as follows:

Weight of crank 143 lb. × 115 = 16,450 lb. net
Weight of shoes 23 lb.

Gross weight 166 lb. × 115 = 19,100 lb. gross
Dividing these figures by 79 gives 209 lb. net, or 242 lb. gross, heated per gal. of oil.

Since 1 lb. of steel requires 256 B.t.u. to raise its temperature to 1650 deg. Fahr., the efficiency of the furnace is

$209 \times 256 \text{ B.t.u.} = 36.1 \text{ per cent net efficiency}$

147,700 B.t.u.

242 × 256

or $\frac{242 \times 256}{147,700} = 41.9 \text{ per cent gross efficiency}$

This efficiency is high for this class of work; in addition, automatic heat and time control assure uniformity of product.

Where American Steel Went in June

Canada as Usual Takes the Most, Showing a Gain—Japan Ranks Second—South America and Europe Take About Equal Amounts

OF the exports in June, Canada, leading as usual, took 76,082 tons, and for the six months ended with June, 1927, exports to that country aggregated 432,419 tons as against 403,889 tons for the corresponding period one year ago. Japan ranked second in our steel exports both in June and the six months ended with

June of the present year, the shipments amounting to 17,251 tons and 148,403 tons respectively. For the six months ended with June, 1926, exports to Japan totaled 130,340 tons. Japan led as the source of business in rails, black steel sheets and tin plate during the fiscal year ended with June, while Canada led as to most of the other important products.

Of the 9911 tons of black welded pipe exported in June, Peru took 2979 tons; United Kingdom, 1088 tons; Japan, 1006 tons; Argentina, 842 tons, and Mexico, 701 tons. Galvanized pipe exports in June totaled 3989 tons, of which Brazil took 667 tons; United Kingdom, 610 tons, and Cuba, 388 tons. Three South American countries, Brazil, Argentina and Chile, took 12,272 tons of American galvanized sheets during the six months ended with June, Brazil leading with 5932 tons, while Argentina was second with 5128 tons. Chile took 1212 tons.

Destination of Iron and Steel Products Exported from the United States

(In Gross Tons)

Country of Destination	June, 1927	January Through June	
		1927	1926
North and Central America and the West Indies.....	96,738	558,537	541,328
Canada and Newfoundland...	76,201	432,937	404,292
Cuba	6,805	41,694	44,216
Mexico	7,069	44,602	49,228
Guatemala	650	4,360	7,334
Salvador	182	2,671	10,631
Panama	1,928	9,495	4,353
British West Indies.....	972	7,698	4,505
Other West Indies.....	2,235	8,475	8,388
Other Central America.....	696	6,605	8,381
South America	26,096	185,966	168,961
Argentina	7,458	42,629	30,368
Brazil	5,368	41,287	18,459
Chile	3,565	15,339	32,375
Colombia	3,164	31,368	32,460
Peru	3,424	17,302	18,150
Venezuela	2,040	29,807	31,088
Other South America.....	1,077	8,234	6,061
Europe	26,703	90,678	68,026
France	1,378	3,131	6,911
Italy	11,779	25,792	21,763
Rumania	87	1,219	1,904
Russia	11	2,129	2,807
Turkey	1,142	2,072	692
United Kingdom	6,981	36,842	24,642
Other Europe	5,325	19,493	9,307
Far East	33,686	286,213	242,131
Australia	1,388	15,499	12,418
British Malaya	448	5,662	4,813
China	2,881	32,804	17,263
Dutch East Indies.....	1,518	20,128	16,514
India	882	14,698	18,549
Japan and Chosen.....	17,251	148,403	130,340
Kwangtung	2,898	14,863	7,197
Philippine Islands	5,782	26,059	30,457
Other Asia and Far East.....	638	8,097	4,580
Africa	1,141	10,474	8,174
British South Africa.....	397	4,593	4,155
Egypt	59	2,237	2,991
Portuguese East Africa.....	678	3,099	847
Other Africa	7	545	181
Total	184,364	1,131,868	1,028,620

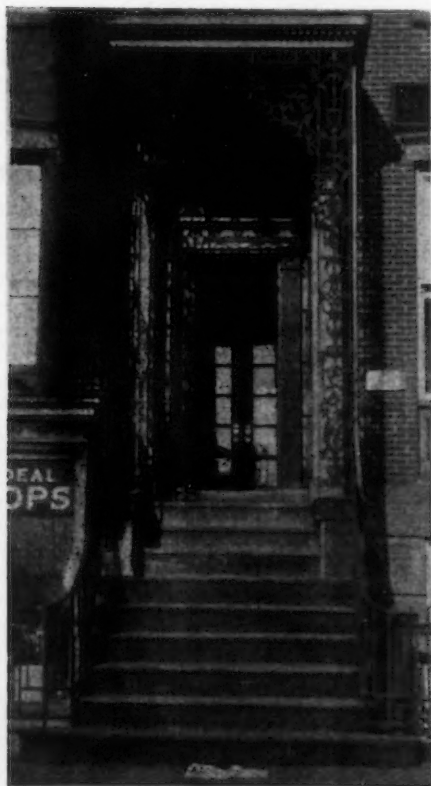
United States Exports of Iron and Steel

(In Gross Tons)

	All Iron and Steel	Pig Iron	Semi-Finished Material
*Average, 1912 to 1914...	2,406,218	221,582	145,720
*Average, 1915 to 1918...	5,295,333	438,462	1,468,020
*Average, 1919 to 1921...	3,804,910	185,315	162,048
*Average, 1922 to 1924...	1,927,988	34,906	124,789
Calendar year 1925.....	1,762,571	32,674	108,681
January, 1926.....	174,585	1,663	4,388
February	157,187	1,478	5,615
March	169,438	1,489	6,050
April	194,449	2,010	7,167
May	173,418	1,107	9,880
June	159,506	1,369	5,714
Fiscal year 1926.....	1,948,860	30,587	103,271
July	194,717	2,595	14,558
August	171,588	2,744	14,437
September	182,071	2,173	12,569
October	172,070	2,205	13,983
November	219,830	3,724	17,528
December	198,189	2,651	10,412
Calendar year 1926.....	2,167,048	25,208	120,602
January, 1927	215,235	3,734	5,531
February	166,129	2,466	3,935
March	171,094	3,647	7,782
April	192,339	3,753	8,748
May	202,708	4,115	8,230
June	184,364	4,863	13,721
Fiscal year 1927.....	2,278,168	38,631	129,632

*Calendar years.

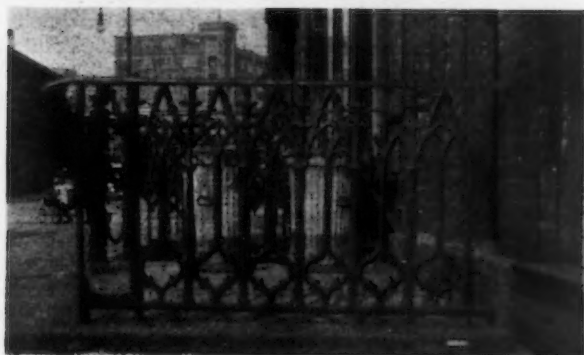
Iron Work in Greenwich Village, New York, Dates Back Nearly a Century



THE Lacy Iron Work on This Old House on West Twelfth Street, Shown at the Left, Is in an Almost Perfect State of Preservation. The house was built about 1845



THE Rail on the Right Shows the Grecian Influence. This house on Abingdon Square was erected before 1835. Provision has been made for foot scraper



THE Rail, Shown Above, Is a Rare Example of Gothic Iron Work, Erected During the Early Victorian Period. The house is at 646 Hudson Street

BELOW Is a Rail on the House on West Twelfth Street Mentioned Above. It shows the Grecian influence in its top and bottom portions



THE Decadent Period in American Iron Work Is Well Illustrated in the Photograph Above. It is a more recent installation, apparently, with no precedent in design

The photographs were furnished by Charles A. Johnson, 214 Madison Avenue, New York

Manganese Tariff Helps Leaner Ores

Producers in Meeting at Washington Give Assurances of Increased Production Under Plans for Beneficiation of Domestic Ores

WASHINGTON, Aug. 9.—Outstanding in the meeting held here on Tuesday of last week by domestic producers of manganese ore was the emphasis placed on results that are being obtained from the beneficiation of ores of less than standard manganese content. As stated in THE IRON AGE of Aug. 4, the American Manganese Producers' Association was organized, and decided to set up headquarters in Washington. It will conduct a campaign to further the production, beneficiation and use of domestic manganese bearing ores and continue the work for retention of the existing tariff duty of 1c. per lb. of manganese content. The meeting was attended by about 35 persons, chiefly representatives of the domestic industry, also representatives of the Tariff Commission, the Geological Survey and the Bureau of Mines.

Favors Lowering of Duty

The one dissonant note came from Edward F. Goltra, president Mississippi Iron Co., St. Louis, who has made application to the Tariff Commission, under the flexible provision of the tariff act, to reduce the duty 50 per cent. Mr. Goltra, who said that his blast furnace is shut down at present because of inability to make a profit from the present prices of pig iron, is preparing to make ferromanganese. He had carefully searched available domestic deposits of manganese ore and found that they are too low in grade to make standard ferromanganese. His agents also have made investigations, he said, in the Caucasus, Brazil, Australia and South Africa, and had found deposits in the last named country which will meet requirements, but cannot be imported profitably under the present duty. He said, however, that he was altogether in sympathy with the development of a domestic manganese industry and would much prefer to use the home product provided it measures up to specifications and can be bought at a price that will afford a profit on the ferroalloy.

Leonard B. Miller, Cleveland, representing manganese mines in the Batesville, Ark., district, responded that even though the duty on manganese ore were entirely removed Mr. Goltra would be in no better position than he is now, because other consumers of the foreign material would likewise get the benefit of free entries and therefore could continue to compete on an equal basis. He asserted, as did others present, that through beneficiation and research the domestic producers will be able to supply ores up to the standard grade and urged that they be given encouragement by the retention of the duty. One producer submitted to Mr. Goltra an analysis of ore that had been produced in Montana, which, it was stated, would meet specifications. Mr. Goltra said that he would be glad to consider the offer and accept shipments if they are satisfactory.

Developments in the Domestic Industry

The conference was presided over by J. Carson Adkerson, Woodstock, Va., president of the Hygrade Manganese Ore Co., who was elected president of the newly organized association. In outlining the purpose of the meeting he pointed out that the manganese ore industry in this country is in its infancy. The famous Crimora mines in Virginia produced close to 200,000 tons. In 1914 the production from domestic mines was reported as 2653 tons; in 1918, during the war, 305,869 tons; in 1922, 13,404 tons, and in 1925 the recorded shipments were 98,324 tons. In 1926 the shipments from domestic mines were approximately 48,000 tons. He named 25 States as producers of manganese and added Cuba and Porto Rico. The annual consumption in the United States, Mr. Adkerson declared, is approximately 800,000 tons of high-grade or 35 per cent plus

manganese ore and 2,248,000 tons of 5 to 35 per cent ore. Practically the entire tonnage of low-grade manganese ore, he said, is produced in this country.

Stimulation of Domestic Production Credited to Tariff

Since the passage of the tariff act carrying a duty of 1c. per lb. of metallic manganese, or \$11.20 per ton on 50 per cent ore, equivalent to but 16c. per ton of steel produced, the speaker said, propaganda against domestic manganese has been spread at large. Representations are being made that there is practically no manganese ore in the United States.

"The ones behind this movement," said Mr. Adkerson, "seem to be certain American capitalists now operating in Russia. Opponents of the tariff claim that our total reserve of ferro grade ore is only 1,493,200 tons. They fail to show that mines of the United States have already shipped more than 1,493,000 tons of high grade manganese ore and that the deposits have hardly been scratched. They fail to show that various developments have gone forward under the encouragement of the tariff and in instances have shown reserves 10 to 50 times greater than was admitted to exist and that new discoveries are being reported month by month. They fail to show that the United States has already shipped more than 14,000,000 tons of 5 to 35 per cent ore and that the admitted reserves of this grade of such ore are in the neighborhood of 40,000,000 tons."

"We have reserves far greater than have been credited," said Mr. Adkerson. "We have substantial interests operating in the fields; we have operations on the eve of production. We have the tariff, and it is simply necessary to maintain it. With the cooperation of all parties concerned there is little doubt that the tariff can be maintained."

Domestic Producers Announce Plans

Discussion of the situation was engaged in by practically all of those attending the meeting.

Joel Hurt, Atlanta, Ga., of the Georgia Minerals Co., said that his organization has 55,000 acres in Georgia, Alabama and Tennessee and is preparing to go into manganese production by placer mining, proposing to put out 20,000 tons a year at the start. He declared his company is willing to give contracts at a stated price and if necessary will give bond. To continue production, he said, it is necessary that the tariff be retained.

If the tariff be removed the operations of research, experiment and mining of manganese ores in the United States will be dealt a death blow, L. B. Miller said. Arkansas has large resources of ore in the Batesville and Cushman districts. He urged continued and increased operation rather than having the mines shut down and said it was not a political matter, but an issue involving the prosperity of the industry and its workers. It was asserted that if the duty is continued there will be a substantial gain in production and the industry will take on large proportions. Mr. Miller referred to the presence at the meeting of George C. Branner, Arkansas State Geologist, attending at the request of the acting governor of that State and who had looked into the ore reserve situation there. At the recent meeting in Cleveland on the manganese ore situation Mr. Miller said he had created a laugh when he estimated manganese ore deposits of 50,000,000 tons, but that since that time he had increased the tonnage. He declared that through beneficiation much ore can be transferred into the ferro grade for the steel industry's requirements.

(Concluded on page 353)

Better Rails from Heat Treatment

French Process Uses Water Quenching of Rail Head

—Deep Hardness and Greater Strength

Shown by Tests

AN interesting patented process for the heat treatment of rails, worked out at a French steel plant, is described in a recent article in the *Revue de Métallurgie*, the authors being L. Thibaudier and H. Viteaux. The article opens with a discussion of the rail question, largely based on a paper delivered by W. C. Cushing, of the Pennsylvania Railroad, before the International Railroad Congress in May, 1925.

Mr. Cushing reaches the conclusion, based on experiments carried out at Altoona, Pa., that it is heat treatment which appears to promise a solution of the rail problem. This is supported by the conclusion of other authorities who are quoted. Next comes a short discussion of the methods of heat-treating rails, with prominence given to the treatment outlined by J. E. Stead in 1903, followed by experimental work in 1906, and the well known Sandberg process.

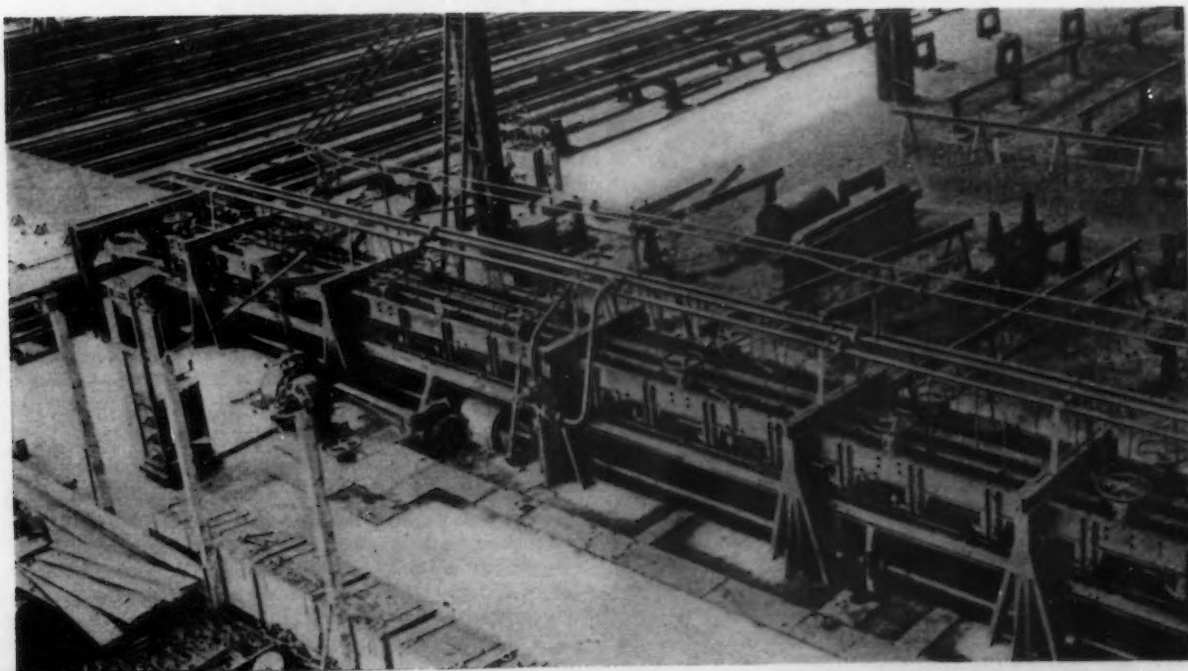
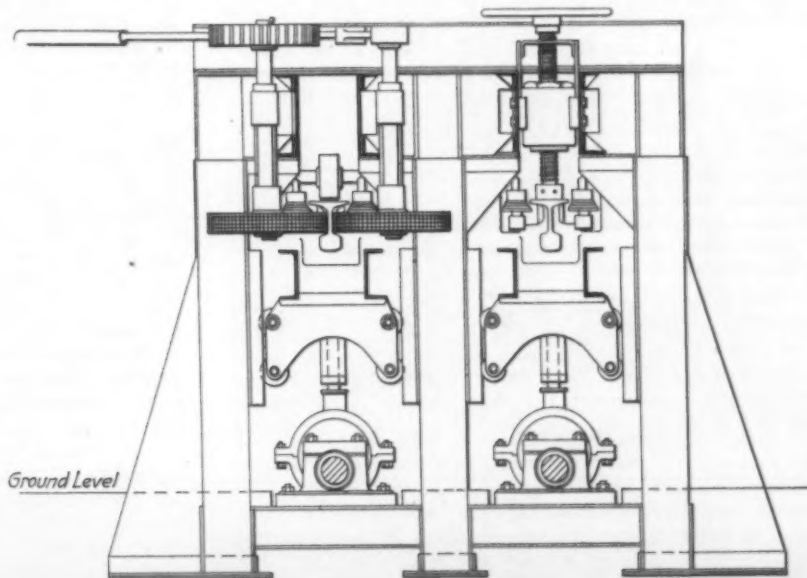
Head of Rail Quenched in Cold Water

The process of the authors is called the Neuves-Maisons process, from the plant where it was worked out. It is protected by patent in the United States and it is also protected in other countries. The process consists of an intermittent quenching of the head of the rail only in a definite quantity of cold water, the quantity depending on the weight of the rail.

The treatment is carried out in the apparatus shown in Figs. 1 and 2, which consists of a fixed beam carrying a succession of rollers and guides. Below this beam is carried a tank holding the water for quenching, mounted in such a way that an up-and-down movement is given by an eccentric. The stroke and the frequency can be varied at will. On leaving the hot saw the rails are pushed, one by one, into the quenching apparatus with the head down, the flanges sliding

FIG. 1 (Right)—Details of the Method of Holding the Rails in the Double Apparatus for Quenching Rails at Neuves-Maisons, France

FIG. 2 (Below)—General Appearance of the Double Apparatus for Quenching Rails by the French Method



between the rollers and the guides. When the rail is entirely engaged in the apparatus, it is tightly held, as shown in Fig. 1, with the head hanging freely. The tank holding the water is given the proper movement and the head is subjected to a succession of quenchings, of which the number, frequency and relative times are determined by experience with the metal to be treated and the results desired. The rail is held straight during the treatment and the head quenched to a definite depth from one end to the other. The treatment is stopped before the head is cold, the rail pushed from the machine on to the cooling beds and cooled under the usual conditions. The tank is then emptied and filled with fresh water for the treatment of the next rail.

Several Advantages Are Claimed

The principal advantages claimed for the process are the following:

1. Quenching in a definite quantity of water, the quantity depending on the weight of the rail, allows the intensity of the quenching to be limited somewhat automatically. The bath of water is rapidly heated, and its quenching intensity diminishes rapidly as its temperature is raised.
2. Stopping the quenching before the rail is completely cold allows the heat stored in the center of the head, the web and the flange to flow to the quenched part and produce a very appreciable tempering or drawing.
3. The heating of the bath of water and the tempering or drawing action are more marked if the initial temperature of the rail is high. Because of this, rails leaving the rolls at different finishing temperatures, varying as much as 100 deg. Fahr. or more, have practically the same hardness after treatment.
4. The intermittent immersion constantly changes the contact of steel and liquid, thereby modifying the formation of bubbles of steam and gases. This brings about more regular hardening and avoids cracks, soft spots, etc., often produced by ordinary quenching.
5. By suitable regulation of the time the rail remains in the quenching bath and of the time of withdrawal, and on the other hand by regulation of the volume of the quenching bath, effects may be produced which are intermediate between simple water quenching and air cooling.

The authors mention that in actual work they have found it advantageous to place a feed pipe along the bottom of the quenching bath, pierced with small holes very close together. Cold water is fed under constant pressure to compensate for that lost by being thrown out or lost as steam. The feed is regulated according

to the kind of steel treated and the degree of hardness desired. In the case of street car rails, the feed pipe is only under the main body of the head, so as not to harden the guard rail too much.

Detailed Results of Effect of Treatment

The rest of the article gives detailed results obtained on rails made under French conditions and therefore made of basic Bessemer steel, low in carbon when compared to our practice. The first lot of rails was made to French railroad specifications calling for a tensile strength equal to or greater than 92,450 lb. per sq. in. They were treated to give a tensile strength equal to or above 113,780 lb. per sq. in., and elongation not less than 9 per cent in 3.94 in. The test piece was machined from the corner of the head. The rails had to withstand the normal drop test. An average of the 133 tensile tests carried out gave, on the untreated steel, 103,100 lb. tensile strength with 15.4 per cent elongation, and on the treated steel 125,900 lb. per sq. in. tensile with 11.3 per cent elongation.

Another long table gives the detailed results on a test lot of 150 tons of rails made in 1923 showing great regularity. Thirty-eight heats were tested, the tensile strengths varying from 117,340 to 132,270 lb. per sq. in., and the elongation from 9.5 to 14 per cent.

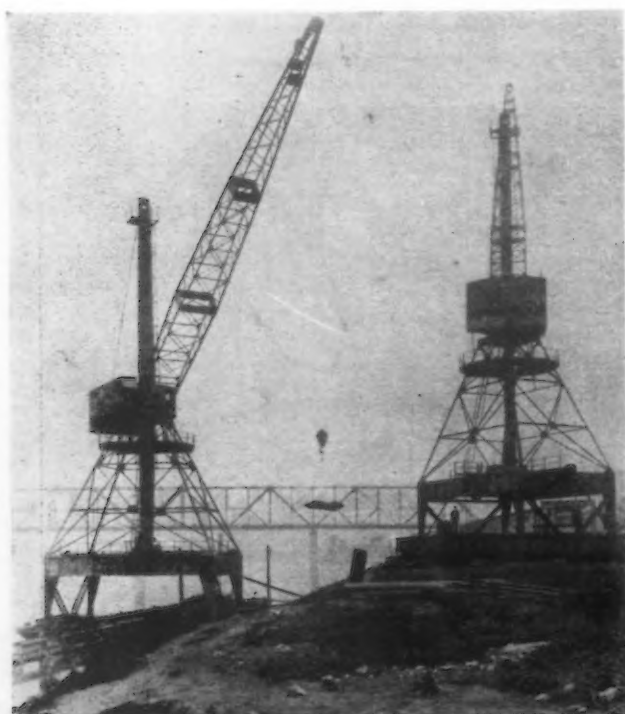
Hardness Extended Below Normal Wear

Standard Brinell hardness tests indicate that the hardening effect extends to a depth of more than 30 mm. (1.18 in.), that is, beyond the depth of normal wear. Photomicrographs show the change in structure from one with pearlite and a great deal of ferrite to one with sorbitic pearlite and very little ferrite.

Further results are given on a lot of 1000 tons of rails, 500 tons untreated and 500 tons treated. The average analysis was carbon, 0.314; manganese, 0.971; phosphorus, 0.071; sulphur, 0.038; and silicon, 0.161 per cent. The untreated steel gave an average tensile strength of 87,000 lb. with 24.1 per cent elongation, and the treated steel showed 99,420 lb. per sq. in. tensile strength with 19.1 per cent elongation.

Lower-carbon steel when treated gives better results than a higher-carbon steel untreated. Experience with street car rails laid since 1923 would indicate that treated rails should give double the service of untreated rails.

The paper finally gives results obtained with the Amsler wear testing machine on samples from treated and untreated material, showing the superiority of the former.



Pig Iron Being Transferred from Barge to Car at Cincinnati

AN increasing number of iron and steel companies are making use of the river-rail terminal at Cincinnati, operated by the Cincinnati River-Rail Transfer Co. It has been in service about six months. The Jones & Laughlin Steel Corporation has been employing it to transfer material enroute from its mills to its Cincinnati warehouse. Another large user has been the Belfont Steel & Wire Co., Ironton, Ohio, which has been moving pig iron from its Ironton furnace by barge to Cincinnati, where it is transferred at the terminal by crane to railroad cars for delivery to melters in the Cincinnati metropolitan switching district. Other iron and steel producers are negotiating for the use of the terminal.

Steel Dumping Alleged at Hearing

American Mills Present Their Side of the Case at Washington
and Representative of Otto Wolff & Co. Denies the Charges

WASHINGTON, Aug. 9.—Domestic producers of steel presented testimony at a hearing here on Wednesday, Aug. 3, before officials of the division of customs, Treasury Department, in the matter of alleged dumping of German steel in this country. Application of the anti-dumping act is sought by American interests on the ground that rolling mill products are being sold in the United States at less than the German home market prices.

Combatting their appeal, importers, represented by George E. Dix, American agent for Otto Wolff & Co., Germany, vigorously denied the charge, stating that imports from Germany are not being dumped and represent only a negligible tonnage, particularly when compared with United States output. It was asserted that there is no proof, as is required under the act, to show that the domestic industry is being injured or is likely to be injured.

Those appearing for domestic producers included R. E. McMath, vice-president Bethlehem Steel Co.; W. H. Johnston, assistant to the vice-president of Bethlehem; C. W. Bretland, district manager of sales in the structural department, New York; R. J. McIntosh, sales engineer at Bethlehem, Pa., and E. R. Leonard, Washington representative; A. H. Holliday, manager export department Jones & Laughlin Steel Corporation; H. G. Uphouse, Philadelphia district sales manager Donner Steel Co.; F. F. Foss, assistant to president Wheeling Steel Corporation; J. C. Argetsinger, assistant general counsel Youngstown Sheet & Tube Co.; H. J. Miller, Pittsburgh Steel Co.; D. H. Miller, Gilbert & Bennett Mfg. Co., Georgetown, Conn., appearing for producers of poultry netting and wire cloth; R. G. Southwell, counsel Wickwire Spencer Steel Co., Inc.; George H. Clark, counsel Hot Rolled Strip Institute.

The proceeding is the outgrowth of complaints made originally that German pig iron and steel for export were being subsidized through payment of bounties. The Treasury Department issued a countervailing order, the matter was taken up through the German Government, investigation was made by American representatives for the State and Treasury departments, and subsequently the order was withdrawn on the strength of the report that there was no evidence of bounties being paid on pig iron and rolling mill products. Application was later made for an anti-dumping order, which has been followed by a broad investigation by the division of customs, Treasury Department. An anti-dumping order was issued as to imports of German pig iron and is now in effect.

R. E. McMath States Case for Bethlehem

The opening statement at the hearing was made by Mr. McMath. He asserted that importations of iron and steel products have reached such tonnage and are sold at such low prices that their effect has been felt throughout the domestic industry. Figures presented showed that imports rose from 120,000 gross tons in 1921 to 1,100,000 tons in 1926. The actual incoming movement for the six years, Mr. McMath pointed out, amounted to 4,136,912 tons, of which pig iron constituted about 45 per cent and steel products 55 per cent. The total invoice value was \$184,708,000. Germany, as a source of iron and steel imports, it was stated, showed a growth from an unimportant position in 1921 to a leading place in 1926. In support of this statement, Mr. McMath read an abstract from an article in *THE IRON AGE* of Feb. 3, 1927.

"Taking the Department of Commerce figures for the importation of German structural shapes and bars only, we have importations of 34,418 tons, and, assuming a value of \$40 a gross ton, we had \$1,276,720 worth of these commodities alone entering the United States from Germany last year, and on the same basis the total value of the 114,450 tons of all steel products imported

from Germany last year was \$4,578,000," said Mr. McMath.

The explanation was made by Mr. McMath that, while imports are small when compared with domestic production and consumption, it should be borne in mind that, because of the cost of railroad freight from the seaboard to inland points, it is, as a practical matter, difficult for the German producers to compete with American producers at points remote from the seaboard. For this reason, it was urged, the most substantial part of the imports remains and is consumed in the Eastern part of the United States, particularly on the Eastern seaboard, and the effect is felt chiefly by American producers who depend for their market largely upon consumption in the Eastern district.

The Bethlehem Steel Co.'s production of rolled steel and other finished products in 1926, Mr. McMath said, was 4,337,957 gross tons, while the importations of steel products for the same year amounted to 664,172 tons, or more than 15 per cent of the Bethlehem output. The importation of this foreign steel was declared to have definitely replaced a like amount of steel of domestic manufacture, some of which would have come from the Bethlehem company.

Large Foreign Sales in Seaboard Cities

In 1926, Mr. McMath stated, German structural shapes imported into New York represented 18.5 per cent of the sales of standard structural shapes in New York by the Bethlehem company, and similar German importations in Boston represented 15 per cent of such sales by his company. German sales of bars, almost all for concrete reinforcing, in New York were said to have represented 15 per cent of the Bethlehem company's sales of that kind of bars in New York, while German sales of bars in Boston were said to have been more than three times the amount of the Bethlehem company's sales of reinforcing concrete bars in that city in 1926.

In addition to the definite loss of a substantial amount of business, an even more important factor in connection with the injury caused the American industry by virtue of the dumping of German steel products is the effect on the domestic market of offering of such steel, it was declared. Even the quoting of low prices, with no sales made, was said to be the means of compelling cuts in domestic prices, according to a report of the Tariff Commission, an abstract of which was cited.

"Assuming products of equal quality and delivery conditions, the sale of steel products is largely a question of meeting the best quoted price, and it is almost a daily occurrence for salesmen in their negotiations with purchasing agents to be asked to meet the quotations on foreign material," said Mr. McMath. "The industry being exceptionally competitive, such low foreign prices are frequently met, and a domestic sale is effected at prices which do not permit of a profitable operation. When such a situation occurs there is no foreign steel sold in the particular case, and, therefore, no reflection in the importation statistics of the effect of the foreign steel quotation. Nevertheless the mere foreign quotation is a real injury to the American industry."

Foreign Competition Affects American Prices

"Many examples could be cited of specific instances in which our company has been compelled to meet quoted prices on German steel products or to, at least, reduce our prices in order to obtain the business. We recently had a situation which illustrates very well the far reaching effects of dumped German steel on our market. One of our jobbing customers insisted that our price be reduced to him in order that he could compete against another jobber who was buying and of-

(Concluded on page 376)

Large Molds Made on Roll-Over Machine

Equipment for Production of Frogs, Switches and Other Manganese Steel Parts Includes Mechanical Sand Handling System

MOLDS as large as 12 ft. by 3 ft., used in the production of manganese steel frogs, switches and guard rails, are being made by the Pettibone Mulliken Co., Chicago, on a roll-over molding machine arranged as shown in the accompanying illustrations. The machine was built by the Osborn Mfg. Co., Cleveland.

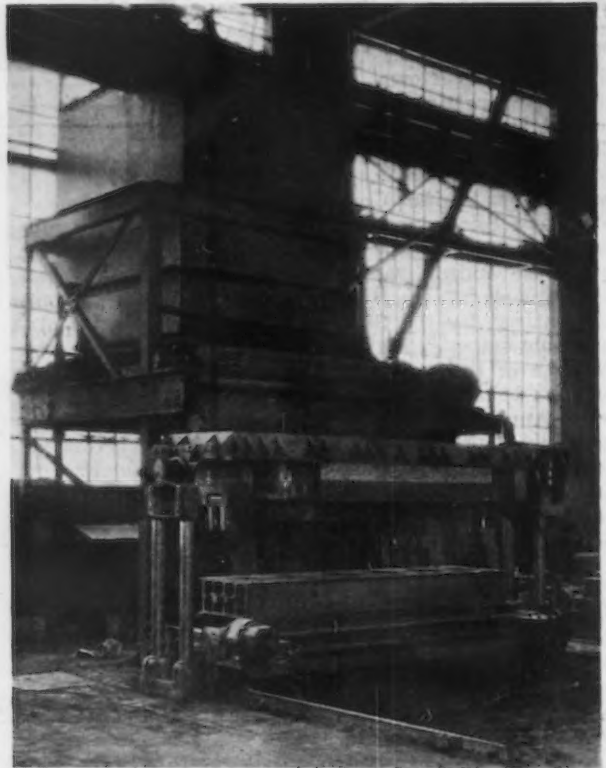
In this foundry molding sand is distributed throughout the length of the building by an overhead belt conveyor so that the addition of the roll-over molding machine necessitated only the determination of its location at some point on the main conveyor line and the installation of a conveyor tripper which unloads sand into an 8-ft. x 8-ft. x 10-ft. overhead steel hopper. The supporting structure is designed so that the weight of the hopper is carried at a point about midway down from the top, leaving ample clearance for the installation of an apron conveyor which serves both as a bottom for the hopper and as the means of unloading sand to a swinging chute which feeds to the flask that is mounted on the molding machine.

The apron conveyor and the chute are operated by electric motors which may be controlled conveniently. After a cope or a drag has been placed in position on the molding machine, the chute is swung to an angle of about 45 deg., so that its lower end is over the pattern from which the mold is to be made. The conveyor un-

der the bin is then started and the required amount of sand is discharged from the bin. The conveyor is then stopped and the chute is swung to the vertical position so that it is out of the way of the workmen when ramming the mold.

Patterns and flasks are placed by means of a 15-ton overhead crane, made by the Harnischfeger Corporation, Milwaukee. Cope and drag sections are handled by a Harnischfeger gantry crane which travels on rails as shown in the accompanying illustration. These rails extend across the closing floor and under the overhead electric cranes which serve the main foundry bay. A transfer table, which is essentially a motor-driven truck, is mounted on rails that extend between the lift bars of the roll-over machine.

The complete operation starts when the drag or cope is brought up by the gantry crane and placed over the pattern that has been previously mounted on the molding machine. The sand is poured and rammed, and the mold is then raised and rolled over. When the molding machine is in the raised position the transfer table is moved so that it is directly under the mold, which is then lowered into position on the table. The pattern is drawn and the table is run out to the end of its short rail travel. The gantry crane then removes the mold and places it on the closing floor.



(Upper Left) A Transfer Table Moves the Cope or Drag From Beneath the Molding Machine and Puts It Within Reach of the Gantry Crane

(Above) After the Mold Is Rolled Over It Is Lowered to the Transfer Table and the Pattern Is Drawn

(Left) A Gantry Crane Travels the Full Length of the Closing Floor

Front Dial Feed Control Features New Milling Machines

New milling machines designated as the Nos. 2 and 3 standard, featuring front dial feed control, have been announced by the Kearney & Trecker Corporation, Milwaukee. Plain, universal and vertical type machines are available, and among the features are the power rapid traverse, Timken roller bearings and low-pressure coolant systems recently described in connection with other of the company's machines.

The arrangement of the front dial feed control may be noted from the accompanying insert illustration. A

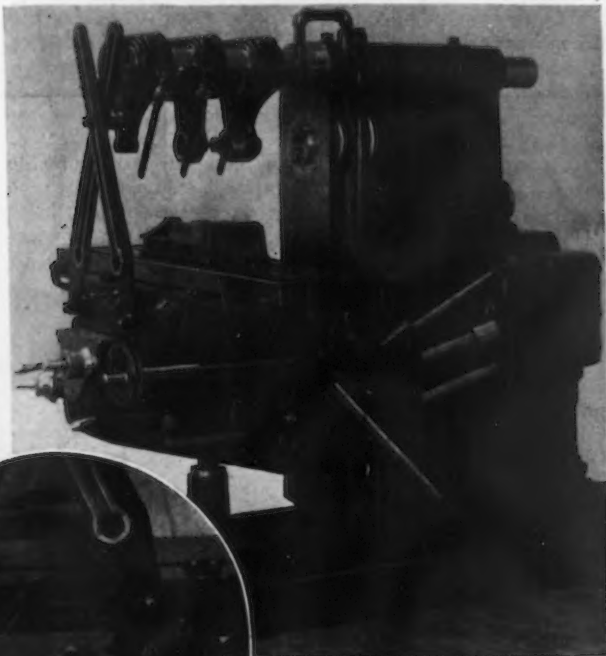
the feed box at the rear permits making the feed box large and powerful, without confining the design to small gears. The feed box can be lubricated automatically the same as other gears and bearings inside the column. The necessity of raising and lowering excessive weights, were the feed mechanism built into the knee or attached to any front part of the machine has been eliminated. By placing the feed box at the rear of the column as a separate unit it may be quickly assembled or removed when desired. All of the principal shafts in the new feed box are mounted on New Departure ball bearings.

New Locomotive Guide Bar Grinder

A new locomotive guide bar grinder of the traveling grinding wheel, stationary work-table type has been announced by the Machinery Co. of America, Big Rapids, Mich. The capacity of the machine is for work up to 84 in. in length and 20 in. in height. Accuracy, savings in floor space due to compactness of design and less power to operate are among the features stressed by the makers.

The machine illustrated is equipped with a rotating or swiveling guide bar holder arranged so that one piece of work can be set up while another is being ground. After one guide bar has been ground, the guide bar holder, swiveling on ball bearings, brings the next guide bar into proper grinding position, at which it is clamped. Grinding is continuous except for the time spent in swiveling and clamping the work holder. The guide bar holder is arranged so that the second set-up can be adjusted to any position or angle desired with the aid of gages provided, and further adjustment is unnecessary after the device is swung into position.

The bed, which has three-point bearing on the floor, is 139 in. long and 30½ in. wide, while the table is 100 in. long and 24 in. wide. The spindle for a 30-in. grinding wheel measures 4 in. in diameter at the front and 3 in. at the back, and is mounted in two radial ball bearings and one large thrust bearing. The wheel



Changes of Feed Are Made Conveniently by Means of the Crank Lever and Dial

single crank lever and direct reading dial, located at the front of the knee, makes it possible to secure instantly 18 changes of feed, either when the machine is running or is idle. The feed box, located at the rear of the column, is of the sliding-gear, selective type. All gears are of alloy steel and are heat-treated and hardened, and the entire box is lubricated automatically by the same pump that lubricates the mechanism inside of the column.

Extending along the right-hand side of the column to the front of the knee, is a universal joint shaft, on the front end of which is mounted a single crank lever for the changing of feeds. The dial with the numerals on it revolves with the crank handle. The outer rim, and the inner portion on which is mounted the arrow, remain stationary. There are two holes, 180 deg. apart, in which the plunger engages. One-half a revolution of the crank makes the change to the next higher or lower feed.

Simplicity is a feature claimed for the device. The crank is turned with one hand, in either direction, until the feed desired is opposite the arrow. There are but two positions in which to engage the plunger, and when any desired feed number on the dial is brought in position above the arrow, the plunger will always be directly opposite one of the two holes.

Among the advantages claimed for the new construction is that both the number of feeds and the range of feeds have been increased, 18 changes, varying from 5/16" to 25 in. per min., now being available. The dial is direct reading; charts and tables have been eliminated. The feed being used may be noted at a glance by the foreman when passing the machine. Having the feed control at the front of the machine and



One Guide Bar Is Set Up While Another Is Being Ground

spindle is driven by a 25-hp., 1200-r.p.m. motor, through silent chain. The drive is entirely by silent chain and gears, the latter being of steel and running in oil. The speed of the wheel is from 450 to 500 r.p.m., and that of the carriage 12, 17 and 24 ft. per min. The carriage overhang on the extreme travel is only 10 to 15 in.

Cross feed is by handwheel at the front of the machine. Feed changes may be made at the front or the back, also power quick-return of the wheel to or from the work, and start or reverse of the carriage. Full control of the carriage travel and the feed is from either the front or back of the machine. Feed changes are from 0.0005 to 0.005 in., operating at both ends of the carriage travel. Automatic lubrication is provided for most of the bearings and the ways, with a constant flow of oil on the ways from the moving carriage without requiring an oil pump. The water supply system includes a 50-gal. supply tank with a 15-gal. overflow or settling tank. The grinding wheel is 30 in. in diameter and is of segmental block type held in a chuck. The floor space occupied by the machine is 7 ft. by 13½ ft. and the weight is 17,000 lb. net.

Angle Cutting Traveling Head Slotter

An angle cutting head arranged so that it can be swiveled 15 deg. on each side of the center, making the machine universal, is an added feature of the Dill traveling head slotter manufactured by the Nazel Engineering & Machine Works, 4045 North Fifth Street, Philadelphia. In connection with the traveling head feature of the slotter, the angle cutting head adapts the machine for the machining of angular sur-



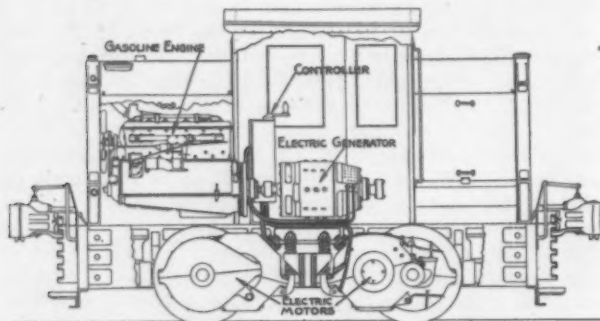
The Cutting Head May Be Swiveled 15 Deg. Each Side of Center

faces at one setting, which operation heretofore required a setting for each side.

The angle cutting head, with the ram and ram guide, forms a separate unit. It is fitted on a hub turned concentric with the crankshaft at the front of the traveling head, and securely clamped at top and bottom. Adjustments of the cutting head are obtained through a worm, which is secured by brackets to the traveling head, and a worm rack bolted to the angle adjusting head. For accurate adjustment a dial indexed in minutes is placed on the worm angle-adjusting shaft. The ram guide for this new feature is fitted with taper gibs at the top and bottom, which prevents springing from the cutting thrust.

Gas-Electric Yard Locomotive

General industrial switching for steel mills and other plants finding it necessary to move cars at frequent intervals is offered by a new gas-electric locomotive put out by the Davenport Locomotive Works, Davenport, Iowa. There are eight sizes, made for all track gages. Those of 4, 6, 8, 10 and 12 tons are made with a single 4-wheel truck, with one power plant and two motors. The larger sizes, 16, 20 and 24 tons, are made with two power plants and four motors, there



One Power Plant and Two Motors Are Used With the Two-Axle Sizes. On the larger locomotives this power plant is doubled

being two 4-wheel trucks. In each case each axle has its own separate motor.

Electric current is furnished by a generator direct connected to a gasoline engine, this unit being the power plant. Power and speed delivered to the axles are regulated through a controller as in a street car. Heavy loads are started in the same manner and it is said to be impossible to stall the engine by overloading. Quick starting and smooth acceleration are emphasized as features.

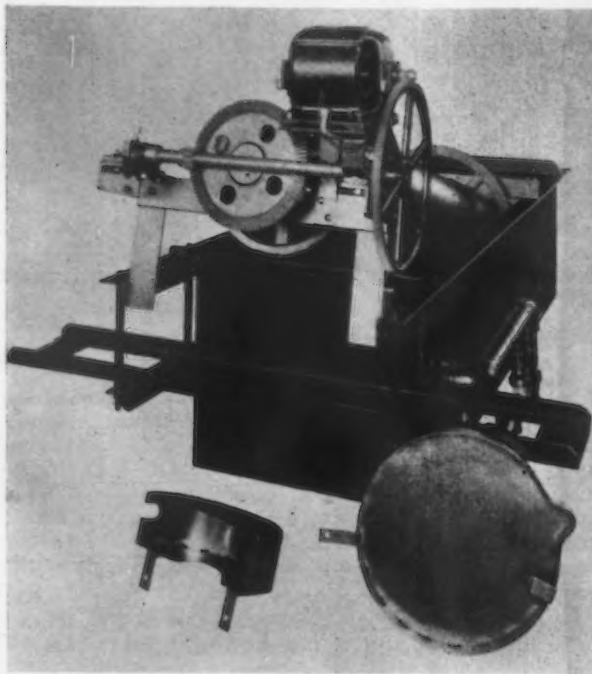
Accessibility is provided by the arrangement of the assembly. All moving parts may be reached easily for oiling. As standard power and electric units are employed, replacing is simplified. The control is so arranged as to avoid abnormal voltage on the motors.

Close control of speeds is possible up to as high as 35 miles an hour. As all the weight is on power axles, a maximum tractive power is available. Control is centralized, as the operator uses one hand for speed control, one for the brake lever and a foot for the accelerator.

In emergency the unit can be used as a portable electric power plant. A removable plug in the cab permits attachment for operating electric drills, hoist or windlass. Lighting of a construction camp by electricity is thus possible, up to as many as 400 lamps of 100 watts each.

Quenches or Washes Metal Parts

A machine for quenching or washing small metal parts has been put on the market by the J. W. Kelley Co., Halstead Avenue and New York Central Railroad, Cleveland. The work is dumped into one end of the



Several Tons of Pieces Up to 6 In. Long May Be Quenched Mechanically

quenching tank, where it feeds into a rotating drum located in the tank in an inclined position, with the upper end extending above the opposite end of the tank. The work is kept in a rotating motion as it passes through the water, or cleaning solution, until it is discharged through the upper end of the tank into receiving pans beneath.

The rotating drum is 15 in. in diameter and 92 in. long. Extending its entire length is a spiral in the form of an 8-pitch worm, 3½ in. in diameter, which, with the rotation of the drum, causes the work to move through the drum. The drum, which is made of No. 10 gage steel, is perforated to within 12 in. of the top end with 7/32 in. holes. The tank is 24 in. deep, 26 in. wide, 8 ft. long and has a capacity of 227 gal. It is made of 3/16-in. steel plate and is bound around at the top edge with 2½-in. angle iron. It has a 2½-in. pipe flow and a 1½-in. diameter drain.

The drum rotates on hardened steel rolls equipped

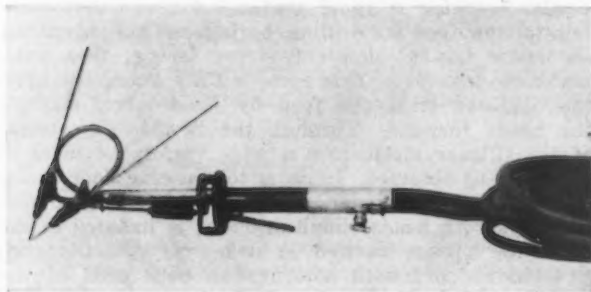
with ball bearings. These rolls support practically all the weight. The bearings are above the liquid and are inclosed so that water, sand and grit cannot get into them. A ball thrust bearing is located at the top end of the drum to carry the end thrust. The drum is driven through gears from a motor mounted above the upper end of the drum. Electric welding was used in the manufacture of the tank and drum.

The machine will take work up to 6 in. long and has a capacity of several tons per day. When used for cleaning, the cleaning solutions may be kept hot with steam pipes inside the tank or with gas burners beneath the tank.

Equipment for Welding with Atomic Hydrogen

Methods of producing a flame of atomic hydrogen and its probable use for welding was described in *THE IRON AGE*, April 8, 1926, page 989. The investigations leading up to the discovery were directed by Dr. Irving Langmuir of the General Electric research laboratory.

Since that time the process has been put to extended use in the shops of the company, notably in the production of its automatic refrigerator unit. This per-



The Atomic Hydrogen Welding Torch Is Now Available for General Use

mitted the development of the equipment, which is now ready for sale.

In brief, this method utilizes the passage of a stream of hydrogen through an arc struck between two metal electrodes. The heat of the arc breaks up the hydrogen molecules into atoms. A short distance beyond the arc these atoms recombine into molecules of the gas, and in so doing liberate a great amount of heat. This heat gives the jet of gas the appearance of a flame, and it is used exactly as an oxy-acetylene welding flame—that is to say, it will melt without oxidation the abutting edges of any metals, and reinforced joints may be made by the addition of suitable welding rods.

The welding outfit consists of a single-phase transformer for converting 60-cycle single-phase power to the voltage suitable for the welding equipment, a specially designed, variable reactor to provide the proper welding current and voltage for different classes of work, the welding torch by means of which the actual work of welding is performed, a cylinder of hydrogen with pressure reducing regulator, and the necessary hose, cables, hood and electrodes.

The torch consists of a holder supporting two tungsten wire electrodes with the electric conductors, and the tubing and valve for hydrogen gas. Each electrode is supported inside a nozzle through which the gas is forced out around the electrode. The combination of electrodes and nozzles is set at an angle and the distance between electrodes, or arc length, is readily adjustable by pressure on the hand lever. When welding ceases, the circuit is automatically interrupted until such time as the operator is again ready, when the circuit is automatically restored. In contrast to the usual method of electric arc welding, there is no current flowing from the electrodes to the work to be welded; the circuit is completed from one electrode to the other and the heat transmitted to the work by the jet of gas.

The new equipment is recommended for use on ordinary metals less than $\frac{1}{4}$ in. in thickness, or on hitherto unweldable metals of greater thickness.

Patented Segmented Grinding Wheel

To obtain increased efficiency in the grinding of steel shear blades, the Heppenstall Forge & Knife Co., Pittsburgh, has developed and patented a segmental grinding wheel which, it is stated, will do more work and will have longer life. The abrasive segments are

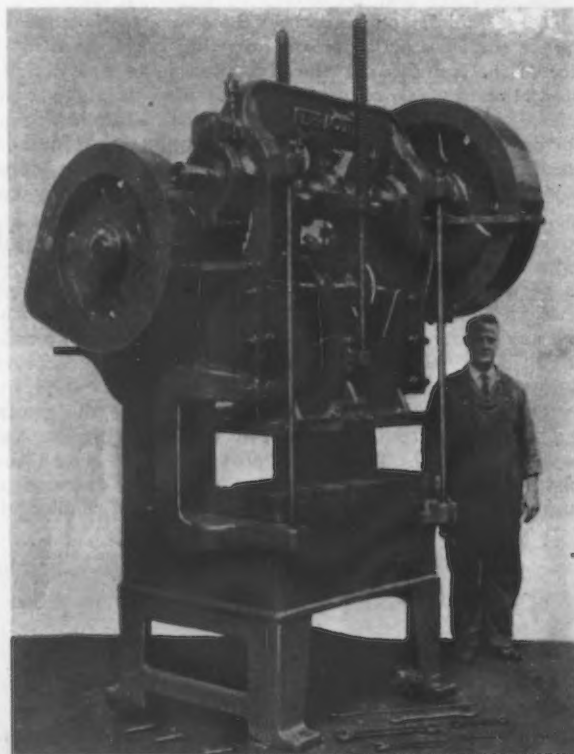
The Segments Are Mounted in a Chuck and Reinforced by Steel Wire Banding



large grain, soft bond Carborundum. These abrasive segments are mounted in a forged steel chuck and reinforced by steel wire banding. The chuck gives support to the segments and the banding prevents the breaking of the segments by centrifugal force. The grinding segments, it is stated, can be used until they are worn down to the chuck.

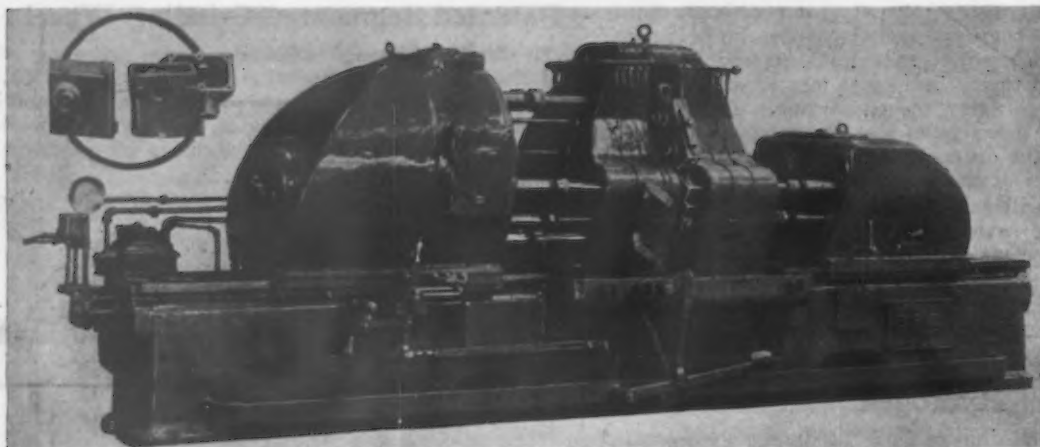
New Double-Crank Geared Power Press

The Ferracute Machine Co., of Bridgeton, N. J., has recently built the throated, double-crank, geared power press, here illustrated, the frame of which is a single casting. The stay at the top provides an additional shaft-bearing, which is said to prevent appreciable flexure of the shaft when the press is working up to its capacity. The stay-rods at the front of the press are not needed for strength, but will obviate



any springing tendency when performing heavy work. The adjustment of the ram is produced by a hand-wheel on a worm-shaft which acts simultaneously on the two pitmans, the weight of the ram being taken by springs connected to the ram by vertical rods.

The flywheel at the left and the gears at the right are inclosed in guards. The press is directly connected to the flywheel by a rawhide pinion. The ram-stroke is $2\frac{1}{2}$ in. and distance from the bed to the ram at top of stroke and adjustment is 15 in. The machine weighs approximately 9550 lb.



Two Pieces Are Completed at Each Cycle. The operator loads and unloads while the machine is working, and the only time from production is in indexing and in traversing the head

PRODUCTION BORING MACHINE

Hydraulic Feed and Individual Motor Drive for Heads Among Features of Duplex Unit

HIGH productive capacity is claimed for the heavy-duty multiple-spindle production boring machine here illustrated, which is one of two similar units completed recently by the W. F. & John Barnes Co., Rockford, Ill., for a manufacturer of automobile accessories. The machine is a horizontal duplex type, and the work for which it was designed includes simultaneous drilling, boring, hollow milling, box milling, line reaming and chamfering and facing to accurate depths, the piece on which these operations are performed being shown in the insert illustration. The elimination of vibration and chatter was given primary attention in designing both the fixture and the machine.

The left-hand head of the machine contains ten spindles, in five groups of two each, and the right-hand head has four spindles, in two groups of two each. The spindles are mounted in Timken tapered roller bearings and are driven by hardened steel gears, both the spindle bearings and the gears being oiled by splash lubrication. Because of the large area over which the spindles in the left-hand head are distributed, the cascade oiling system is also employed, the pump being located in the rear of the head and gear driven by one of the spindles. A supply tank for this pump is mounted on the back of the head. The spindles have nose adjustment to provide for accurate tool setting and to compensate for the grinding of tools.

Each drill head is separately cast and is scraped, doweled and bolted to the saddle, a construction stressed as permitting replacement of the heads if the machine is to be used on different work at a future time, without any change in the basic construction. The spindle drive is by individual standard, squirrel-cage motors mounted at the rear of each head.

The saddles are scraped on top to receive the heads, and on the bottom are scraped to a bearing on the ways of the bed. The saddle cross-heads to which the feed mechanism is connected are bolted and doweled to the under side of the saddles. The bed is of semi-steel,

cast in one piece, and is provided with heavy cross ribs to assure rigidity and alinement. There is a large chip pan in the center of the bed, and a wide coolant trough cast integral with the bed extends along each side practically the entire length. The bed is closed at the bottom forming the coolant sump or reservoir.

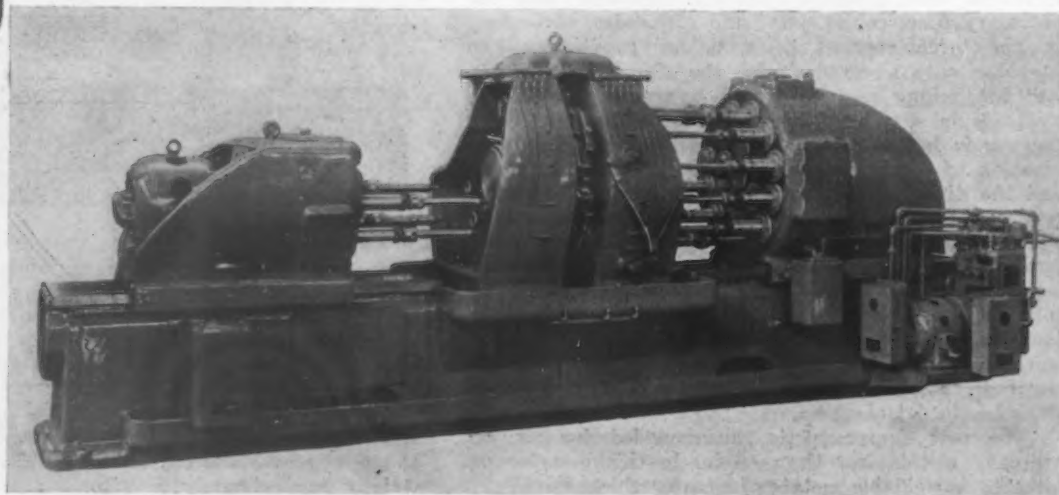
Feed of the boring heads is by means of the Oilgear type QH full automatic pump. The cycle of this particular machine is rapid traverse forward, automatic trip to slow feed for drilling, boring, and hollow milling, automatic trip to slower feed for facing; then automatic quick return. This cycle is fully automatic after the operator trips the feed by hand lever, starting the heads forward. Through the flexible adjustment of the Oilgear mechanism a wide variety of rates of feed may be obtained. In order to conserve floor space, the one Oilgear cylinder, which through rack and pinion feeds both heads simultaneously, is inclosed in the bed. The pinion, carried in a heavy, specially constructed support with bearings on both ends of the pinion shaft, is Timken mounted.

The six-station trunnion fixture provides for loading two castings in each station, the operator loading and unloading at one station at the front while all other five stations are operative. The bushings for the several tools are long, and of large diameter. Liner bushings of hardened steel are pressed into bosses in the castings which act as bushing plates and trunnion supports, and slip bushings fitting in these liners are used to guide the tools.

The overarm of the fixture ties the trunnion supports together and furnishes an oil reservoir, from which leads controlled by sight-feed oilers supply lubrication to each bushing and to the trunnion bearings. Two lock pins operated simultaneously by a foot lever at the front of the machines control the rotation of the trunnion, assuring both accurate alinement and positive locking. The trunnion diameter is 9 in.

Two pieces are completed at each cycle, and since the operator is loading and unloading while the machine is working, only the time of indexing and that of traversing the head to and from the work are lost from actual production. The total weight of the machine, including motors, is approximately 18,000 lb.

The Hydraulic Feed Mechanism Is Mounted on the Rear of the Machine. One cylinder feeds both heads through rack and pinion



Business Analysis and Forecast

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

Statistical Data Concerning the Chief Consuming Industries Indicate That:

1. Steel ingot production, while dropping in June, is in fair balance with the level of composite steel demand.

2. Trend in chief consuming industries appears to foreshadow a moderate recovery during the fall.

3. Car orders in July were above those of a year ago, and locomotive orders were better than in 1926, but both were low.

4. Structural steel sales may reflect the diminishing scale of building activity.

5. Exports may pick up slightly in August and September.

6. Sales of finished steel in the first half of 1927 were the best since 1923; but the second quarter was below the first for the first time since 1924.

7. Automobile production is slack, but more activity is looked for by September.

8. General manufacturing activity, outside steel and automotive industries, has shown a recession, but should expand in fourth quarter.

9. Oil production and mining activity, which earlier were supporting the steel business, have been in a slump since March.

10. Farm purchasing power is better as incomes are higher than last year.

LATEST available data indicate that the production of steel is again nearly in balance with the potential requirements of the chief consuming industries. In June, our composite index of the activity in those industries which are known to be the chief users of iron and steel was only slightly lower than in May. The preliminary figure is 110 per cent of normal, which compares with 110.7 per cent in May and with 116.2 per cent in June, 1926. In each of the last three months the composite demand line has fallen, but in each successive month the decrease has been smaller. In view of the improved general outlook for business this fall, it thus seems probable that any further decline will not be large and that the indicated demand for steel will pick up, at least moderately, by September.

The general decline in the demand index was due chiefly to rather sharp decreases in automobile production, mining activity and exports, and to some recession in general manufacturing activity. These declines were only partly offset by an increase in building contracts and an improvement in farm purchasing power.

The steel production curve in June still remained above the demand curve, and, though the excess was but little, this fact suggests that the July figures will show further curtailment in the ingot output. Indeed, the probability is that production will decline, allowing for seasonal conditions, well through August. More-

over, present indications are that activity in the consuming industries will be rather mixed and irregular and give the net effect of only a moderate gain in the fall. Consequently, steel production does not seem in line for any large expansion. We do not think it likely to reach as high a point, considering the season, as in March or May of this year, to say nothing of August, 1926.

But, on the whole, conditions appear to be sound as to the current rate of production. When inventories of pig iron and certain kinds of steel have been a little reduced, the markets will be in a position to respond to the general rise in commodity prices and improvement in business, which now seem certain within a month or two. Already signs have appeared that iron and steel prices are coming to be regarded as about low enough. For example, there appears to be what may be called "short covering" in the scrap markets, and the last reduction in pig iron prices seems to have done more than its predecessors in the way of attracting buyers.

Conditions in Particular Industries

The reasons for anticipating a rather moderate recovery in steel production this fall appear in the following statement of conditions:

Building: The most encouraging point with refer-

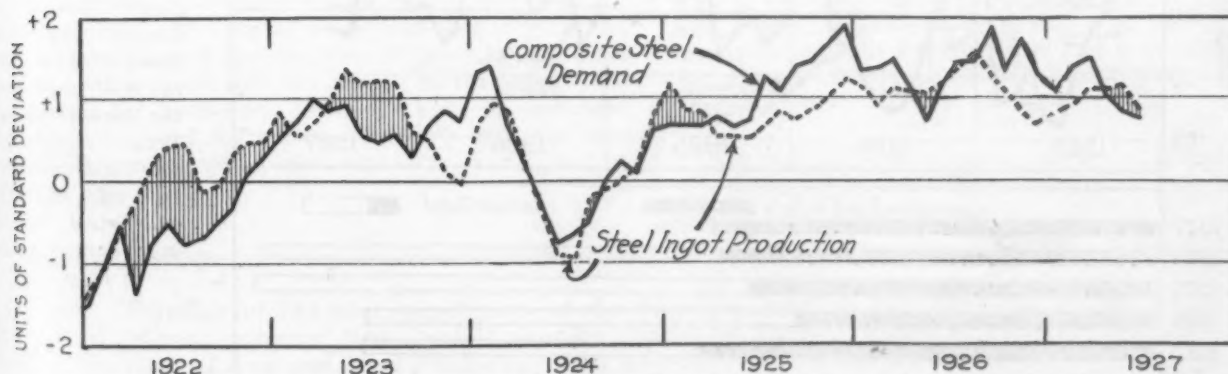


Fig. 1—Steel Ingot Production, Adjusted for Seasonal Variations, Is Slightly Above Demand and May Continue to Decline Through August. A little less activity than a year ago is indicated

ence to building activity is found in the ease of money markets, for there is not much probability of a serious decline as long as interest rates continue so low. This is particularly true of engineering construction, and, as that type of building probably takes the most steel, the industry should benefit. It continues true, however, that residential rents are declining on the average and building permits are lower. The prices of structural steel are barely steady and even in Chicago territory building awards are reported to be dragging. Some recovery in general building activity seems probable this fall, and occasional large commercial structures, bridges, etc., seem likely to continue in evidence and give a fair demand for structural steel.

Railroads: There is no early prospect of much expansion in railroad requirements for steel. Freight traffic is relatively low, considering the season, and the gross and net revenues of the carriers are much under a year ago. Moreover, they are well supplied with equipment. If, however, business shows the recovery that we have forecast for the fall, railroad traffic will gain a little more than usual for the season, and then postponed buying of equipment and maintenance materials should appear. Crop prospects are fairly favorable as affecting the western carriers.

Automobiles: At present, as during recent months, the automobile business with a few notable exceptions, is slack. This is reflected in the small volume of sheet business. Sales have been spotty and on the whole disappointing. The Ford car has been a factor of uncertainty, causing hesitation in buying. By September, however, Ford should be on a quantity basis and this fact together with the marketing of new models should stimulate general activity in the low-priced automobile field.

Mining: Mining has been in a sharp slump since March and naturally this has affected the demand for light rails and other mining material. The decline has occurred chiefly in bituminous coal, but the anthracite business has also averaged much below last summer. Stocks of coal are ample, and the recent slackness in industry has brought a relatively low consumption. It is almost certain that a fairly sharp increase in coal consumption will develop in the fall and after the long slump it should stimulate buying of steel.

Petroleum: The oil industry seems at least to be near bottom. Production in the Seminole field has apparently been checked. Drilling operations have fallen back to the low levels of late 1923 and again early in 1926. But stocks of crude oil and refined products are very large, and it will be a long while before there will

be much curtailment in production. Therefore, no material change in the demand for steel from this source seems likely before spring. The need of storage is probably at or near its maximum point, while no early resumption of drilling is possible.

Manufacturing: General manufacturing (excluding iron and steel and automobiles) held up very well until June, when there was a considerable recession. A further decline will probably be shown by the July figures. The fairly high level of manufacturing activity has been an important factor in a miscellaneous demand for various forms of finished steel. Such activities seem likely to expand in the last quarter. A good condition is noted in textiles, agricultural implements and meat-packing. Incidentally the machine-tool business, though reported to be extremely dull at present and unquestionably much below its position in the summer of 1925 and again in 1926, showed a pick-up in June, when allowance is made for seasonal conditions. Naturally declining profits and business recession have tended to check the buying of new equipment, but improvement should appear in this field by September.

Exports: As we have considered probable, the exports of iron and steel declined again in June to about the low point of the year, making due allowance for the seasonal factor. Conditions abroad are not such as to encourage foreign buying and competition from European producers is severe. A little pick-up in August and September would be logical, but nothing more. If prices advance here, the export movement would naturally be checked.

Agriculture: The farm situation is moderately encouraging. Farmers, as a result of good sized marketings and higher prices, have received larger incomes on the average than last year. At the same time, the purchasing power of the farm dollar has increased, being nearly back to the level of a year ago. This improvement is reflected in large and growing mail order sales.

Half Year Better Than in 1926

AS in both of the past two years, the total orders of some of the chief kinds of finished steel gained in June. Moreover, it may still be said that the total quantity sold in the first six months of 1927 exceeded the quantity sold in the same period of any year since 1923.

Looking a little deeper, however, the showing is not quite so favorable. June had one more working day than May. The increase in June this year was much less than that in June, 1925, or June, 1926. The total

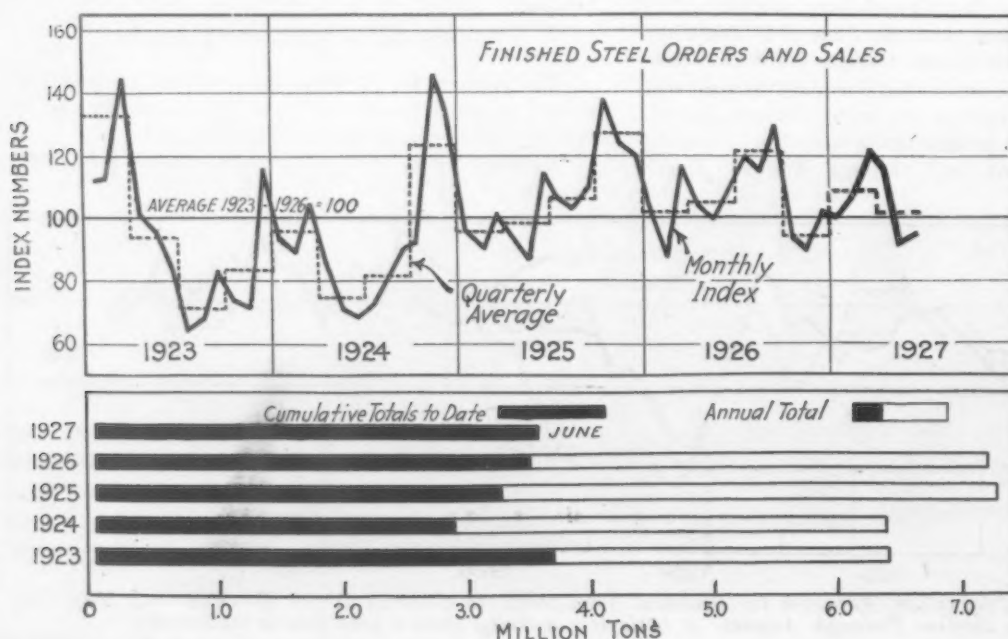


Fig. 2—Finished Steel Orders and Sales Showed a Seasonal Gain in June. Orders for the half year are the highest since 1923. But the second quarter fell off. Sheets and steel castings gained notably

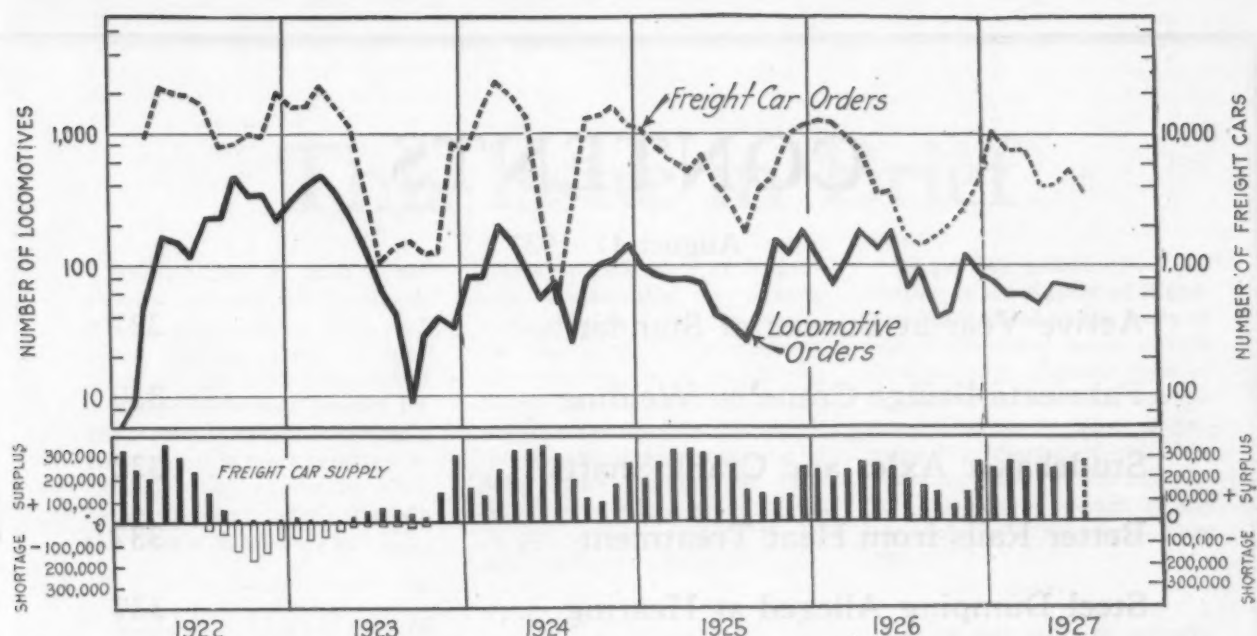


Fig. 3—Locomotive and Car Orders in July Were Above the Same Month of 1926, But Unfilled Orders Declined. Both curves are plotted as a 3-month moving average

for the second quarter was less than for the same period last year, and this is the first time since 1924 that the second quarter sales have been under those of the first quarter. As a result, the six months' total of orders and sales exceeds the same period last year by a smaller margin than was shown by a comparison of the five months' totals.

Sheets and Castings Show Gains

The gains appeared in sheets and steel castings, that in castings being particularly noteworthy. It was not only large, but was the first case in which June bookings exceeded those in May in a good many years. The rise in sheet sales was small in comparison with that in June of 1925 or 1926 and left the tonnage much below a year ago. Bookings of structural steel and fabricated plates not only decreased from May but were considerably smaller than a year ago.

Although the foregoing facts are clear indications of a moderate recession in the steel business, they can hardly be interpreted unfavorably for the near future. The June showing more nearly resembles that made in 1925 and 1926 than in 1923 or 1924. As what is usually the best part of the year lies ahead, a recovery and a good volume of business in the next two months is suggested.

Railroad Buying Still Poor

LITTLE trend is apparent in railroad orders for equipment, for, though July showed a decrease, it is to be remembered that there is nearly always a mid-year slump. Both the locomotive and the freight car orders were a little greater than in July, 1926. *Railway Age* reports 26 locomotives against 14 last year, and 1459 freight cars against 1258. But even so, such trend as appears is not very encouraging, as the July unfilled orders for locomotives declined in spite of unchanged shipments, and the surplus of freight cars has been increasing instead of declining, as it usually does at this season.

Coal Supply for 53 Days

Industrial consumption of coal in June was 6.5 per cent smaller than in May, while reserve stocks declined 5.6 per cent, representing on July 1 a 53 days' supply, against 54 days' on June 1. Coal production in the United States, according to the National Association of Purchasing Agents, was 41,999,792 tons in June, or 5.5 per cent less than in the previous month. Details of the monthly survey by the association are shown in the table.

Estimates of United States Coal Production, Consumption and Stocks

(Net Tons)	United States Production	Industrial Consumption	On Hand in Industries, First of Month
February	58,576,000	43,536,000	57,450,000
March	64,075,000	43,237,000	65,735,000
April	43,109,000	38,600,000	77,455,000
May	44,475,000	37,817,000	72,288,000
June	41,999,792	35,346,495	66,510,000
July 1			62,800,024

The per cent rate of coal output, according to the association, is only 14 per cent below what it was 12 months ago. The non-union mines, it states, are producing more than enough tonnage to take care of current needs, and it is estimated that if business activity should show a marked increase in the fall, production might be raised to about 10,000,000 tons a week. Nevertheless buyers are cautioned against entering the autumn with over-depleted coal stocks. The association sees little likelihood of an early settlement of the coal strike and states that it may be late in the fall before an issue is forced by either the miners' union or the operators.

Bituminous coal mined during the first seven months of 1927 amounted to 310,279,000 net tons, according to the Bureau of Mines. This compares with 309,159,000 tons to the same date last year, when there was no strike. Anthracite mined from Jan. 1 to July 30 has amounted to 47,771,000 net tons. This is about 7 per cent better than last year's total of 44,674,000 tons to the same date.

The Chicago Hardware Foundry Co., North Chicago, Ill., celebrated its thirtieth anniversary on July 26.

Schedule of the next installments of the *Business Analysis and Forecast*, by Dr. Lewis H. Haney, Director New York University Bureau of Business Research, follows: Aug. 18—Position of Iron and Steel Producers; Aug. 25—General Business Outlook; Sept. 15—Activity in Steel Consuming Industries.

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Our Best Steel Customer—Is Germany Dumping?

PREMIER BALDWIN appealed to Canadians at Montreal last week to buy as much as they could from the mother country. His speech gave special timeliness to THE IRON AGE article of Aug. 4 showing that last year Canada bought more than nine times as much iron and steel from the United States as from Great Britain. Evidently in trade relations blood is not thicker than water.

In the first half of this year, as appears from the analysis of our steel exports given on page 334, Canada, as our best steel customer, took 432,000 tons of our exported steel products, or 40 per cent of the total. Highly interesting, in the same connection, is the account on other pages of the hearing at Washington last week on the charge that German steel products are being dumped upon the United States. Already an anti-dumping order has been issued by the Treasury Department against German pig iron and now the effort is to have similar action taken against German structural steel and bars.

This Issue in Brief

Machinability of steel is not directly related to hardness. Bureau of Standards finds that lower carbon steels machine more readily than high-carbon or alloy steels heat treated for the same tensile strength. Nickel steel is more readily machinable than chromium steel, but at very high tensile strength the reverse is true.—Page 377.

Molds 12 ft. long are made on roll-over machine. Railroad switch manufacturer places the patterns and flasks by means of an overhead crane; while a gantry crane handles the cope and drag sections. Sand is poured in by a chute connected with an apron conveyor.—Page 340.

Half-million dollar order for machine tools and other railroad repair shop equipment is placed by a Brazilian road. Niles-Bement-Pond gets what is believed to be the largest single machine tool order placed in a year or more.—Page 383.

Heat-treating of Studebaker axles and crank shafts is automatically controlled throughout. Forgings are pushed through the heating furnace with a mechanical pusher, operated by a time clock. The normalizing furnace is similarly equipped.—Page 332.

Manganese ore producers will fight for retention of protective tariff. Declare that their growing industry would be ruined by placing manganese on the free list, and will campaign actively for continued protection.—Page 336.

July building contracts 3 per cent above July, 1926. The total for 37 states east of the Rockies was over a half billion dollars, 16 per cent below the record total of June.—Page 331.

Life of rails may be lengthened considerably by French water-quenching treatment. The head of the rail is immersed many times, each quenching raising the temperature of the water, which rapidly diminishes the quenching intensity of the bath. The strength of rails tested was raised from 87,000 lb. per sq. in. to 99,420 lb. by this treatment.—Page 338.

Seaboard steel business demoralized by German imports, domestic producers declare. At the dumping hearing the charge is made that imported steel is sold at a lower price here than in home country. Importer replies that imports are inconsequential and that the anti-dumping act has not been violated.—Page 376.

Embrittlement of duralumin can be diminished materially by coating the alloy. In laboratory tests a metal-sprayed coating of aluminum was found to give the maximum protection. Varnish and oxide coatings offer some protection.—Page 328.

Prices of iron and steel may rise soon, Dr. Haney indicates. A general upward trend in commodity prices and improvement in business now seem certain within a month or two. When inventories of pig iron and certain kinds of steel have been reduced a little, iron and steel prices may join the upward movement.—Page 345.

Activity in the metal-consuming industries will be rather mixed and irregular, Dr. Haney forecasts. He believes that, therefore, steel output may decline this month. Steel production is now fairly in line with consumption.—Page 345.

Steel output lowest in two years. The July daily rate was 127,134 tons, 4.7 per cent below June, and 3.6 per cent under July, 1926.—Page 379.

Should the metallurgical activities of the Bureau of Standards be confined to the study of the fundamental properties of pure metals? Perhaps some of the researches now done at the bureau would be done in private laboratories if the "co-operating body" desired the information badly enough to pay the real cost of the work.—Page 350.

Avoid soft spots in carburizing abnormal steel by using more drastic quenching media. The critical cooling rate in quenching abnormal steel is higher than that of normal steel. If the carburizer does not wish to change his quenching practice for the abnormal steel, he may use steels with sufficient manganese to bring the critical cooling rate below that obtaining in his usual quenching practice.—Page 377.

Technical societies should urge Congress to grant the Bureau of Standards a larger appropriation. Present funds available for research are pitifully small. The time has come for the technical societies to exert themselves in national affairs.—Page 350.

The popular impression that steel-making is uniformly profitable and free from failures is false. Of 21 newly formed corporations in 1902, only 10 now exist in the same form. Several failed completely, while others sold out, many disadvantageously.—Page 351.

Is surplus labor, released by extended use of labor-saving equipment in producing industries, absorbed by "luxury" industries? Correspondent suggests that the increase in amusement makers, chauffeurs, prohibition law workers and even bootleggers, consumes the labor surplus of the producing industries.—Page 353.

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Build Up the Bureau of Standards

ONE might conclude, after reading an account of metallurgical activities at the Bureau of Standards, that those in charge have been able to make very modest resources in men and money go a very long way. Not all the subjects considered by the bureau are even mentioned in the article on page 327. That a staff of sixteen research men could give serious attention to so many things is in itself remarkable.

But it is fair to doubt the propriety of such dispersion of effort. Is it getting the bureau anywhere? On this question much might be said from the standpoint of political expediency. Many demands come from many Government departments. Much desirable work is suggested by technical societies. The staff finds attractive avenues of research. An unlimited opportunity exists, and the more people one can please with the limited means available the better chance for an increased appropriation. But the obvious danger of pressing expediency too far is that so little of substantial worth can be created. Furthermore, the advantage in practical politics as measured in increased appropriations has been shown by experience to be exactly zero. Nor do Mr. Coolidge's economy program and the eagle-eyed budget director lend much hope for any change except in the wrong direction.

If these contentions be granted, it follows that the bureau will lose nothing much by dropping a dozen or more small projects, each one taking one or two per cent of the resources of the metallurgical section, and devote the total amount so saved to intensive and undisturbed study, the results of which would be more enduring. There is all the more reason for such a course, since we suspect that some of the researches now done at the bureau would be done elsewhere if the "co-operating" body desired the information badly enough to pay the real cost of the work. On the other hand, no privately operated laboratory would feel justified in studying fundamental prop-

erties of matter, not intimately affecting its own business.

This latter is the function of government laboratories—to investigate those general aspects of things which apply broadly; to make discoveries that will be of value to the entire public. So far as the metallurgical division of the Bureau of Standards is concerned, its opportunity (from the standardization side) lies in the study of fundamental properties of pure metals and (from the utilitarian side) of the mechanism of failure. Mechanism of failure includes the reason for corrosion, wear and the cutting action of tools. If it be pointed out that a large percentage of the bureau's present activities are in these lines, it can be replied that many of the findings only add to the enormous mass of undigested information already available, and little of the work reaches the core of the problem.

But even should the activities be reorganized and concentrated in the way suggested, and thus a more proper use be made of existing resources, the incontestable fact would still remain that the funds are painfully scant, by any standard of comparison. In this situation there is a single ray of hope. It is that the technical and engineering societies which have been so anxious to propose problems for the bureau to solve will recognize their indebtedness for past favors, and their share in the impoverishment of their host. Just how the societies can correct this situation calls for their most careful thought. It is plain that the Bureau of Standards cannot be adequately financed except through direct Congressional appropriation, and it is another truism that a Congressman does not act until he is convinced his public demands something and he will be punished if he does not try to get it. It seems to be up to the societies to do this convincing.

Technical societies are constantly growing in membership. They must soon assert themselves in national affairs. Here is a job that is close enough to their engineering interests for them to work on. If they succeed in getting an adequate

appropriation for fundamental metallurgical research they will have done something well worth doing in itself. If they do not succeed at first the effort will at least instruct them in the proper technique for future campaigns.

Mortality in Steel Making

DESPITE the fact that the steel producing companies have been making only moderate earnings upon their investments, there is a popular impression that steel making in general is quite profitable and that the chances of failure are small. It is not realized how many failures there have been. A glance at old issues of the American Iron and Steel Works Directory would quickly disclose the error of such a conception. Of particular use for study is the consolidation supplement issued by THE IRON AGE a quarter century ago—May 22, 1902. Twenty-one newly formed corporations making iron and steel, some of them being but minor consolidations, were there listed, with details of their constituent companies. Of the 21 only 10 now exist in the same form. Several failed completely, while others sold out. It would be impossible to state precisely how many sold out disadvantageously, as a precise line could not be drawn, but certainly no small proportion of them did.

Yet the past quarter century has been a particularly favorable period for steel making, with a large increase in tonnage demand and various circumstances, partly fortuitous, making for profits, including spells in which buying demand exceeded productive capacity, and of course the war period. The last decade of the 19th century had been very unfavorable. It had witnessed the latter, but chief, part of the swing from wrought iron to mild steel, and more than half the decade included a period of industrial depression and tightness of money, whereby many capable concerns went under because they could not command capital for improvements. Presumably the Carnegie organization would have succeeded in any circumstances, but the manner of its success included an ability to finance the change from the puddling furnace to the Bessemer converter, lacking in the case of many of the old iron mills.

The necrology of that period has perhaps left more impression than that of the quarter century that has now followed, a period in which success seemed assured, because those who have succeeded seemed to succeed easily. Had it been as easy as it seemed the others, with occasional exceptions of genuine mismanagement, would have succeeded also.

In the last two or three years the steel making industry has entered a period in which the circumstances are by no means so fortunate as those of the past, or since the steel industry found itself in respect to heavy tonnage production and fully succeeded to the old wrought iron industry. The meager profits and the very strenuous competition bear testimony to the condition. In the eighteen-nineties it was a struggle between producers. Afterward it was not a struggle between producers, nor is it now. It is a struggle of the whole industry to secure reasonable profits, in keeping with the investment, the necessity of making costly improvements in the ordinary

progress of affairs, and the possibility that new discoveries will demand especially large outlays.

In the past four years the steel makers have been meeting price declines, though not fully, by reductions in costs. There is not much now left to be done of that sort; indeed, some chances have been looming that further progress in certain directions will involve great depreciation or obsolescence of present plant facilities. All of this urges that the steel makers address themselves more seriously to the matter of securing adequate earnings.

Hoist by Their Own Petard

SOcialistic thought in Congress during the past 15 years developed into two major legislative acts relating to the steam railroads of the country. These were the valuation and the transportation acts. We need not refer to other acts that were especially in the interest of railroad employees, all tending to increase operating cost.

The valuation act emanated from the late Senator La Follette, who believed that the railroads of the United States represented about 12 billion dollars of value, quoted at about 18 billion in the market. He aimed to demonstrate the proof of this belief, whereupon a reduction in rates to figures commensurate with the supposititious value would naturally follow. The transportation act was planned to get at about the same thing in a different way, i.e., by limiting railroad returns.

Already the work of the valuation branch of the Interstate Commerce Commission has gone far enough to show that the result is going to be very different from what the politicians expected. Its findings will be that instead of the railroads being overcapitalized they are undercapitalized. The dispute as to this between the commission and the railroad companies, which in the end will be for settlement by the Supreme Court, is one of degree of fact rather than trend.

It is clear enough that there is going to be no economic finding justifying any demand for lowering of railroad rates; there is more likely to be a legitimate basis for an increase of them. The limitation upon allowable returns to railroad stockholders also will be expanded, perhaps beyond what anybody has looked for, considering that less than half of the railroad capital is represented by stock.

The socialistic idea that the farmers and the proletariat were paying excessive transportation charges in order to afford dividends upon watered stock held by capitalistic investors has been exploded. Everybody of any commercial knowledge is aware that Wall Street is too arid a place for watered stock anyhow. Any water is quickly dried out. That process occurs irrespective of whether the water has been sprinkled on the foliage or whether the plant has shriveled and shrunk from a bad root system and insufficient feeding.

Savings Deposits Less Barometric

SAVINGS bank deposits have long been regarded as one of the barometers of business conditions. In former days they served the purpose well, no doubt. But of late years, savings bank men point out, elements formerly of small account have assumed such proportions that the growth of these institutions, measured in deposits,

has come to depend less and less upon the savings of the small depositors and more and more on the accumulations of dividends and the deposits of funds already accumulated, which seek the savings banks for strictly investment purposes.

A survey just made of deposits in the savings banks of Worcester, Mass., shows clearly the present trend. On July 31, 1926, deposits of the five banks totaled, roughly, \$122,000,000. On July 31 of this year they were \$129,000,000. The increase was more than \$7,000,000 in twelve months. Considered as an index of the city's general business it seemed to show great prosperity, for Worcester has less than 200,000 population. But under analysis it was found that in wage-earners' deposits the banks had made no gain at all. Of the \$7,000,000 gain \$5,500,000 is held to represent money paid in dividends, this being considered normal growth.

As to the remaining more than \$1,500,000, the story is told in the increase in the amount of the average deposit from \$575 to \$603. The number of depositors increased but slightly, there being 214,000 on July 31, which was only 1600 more than a year before. The higher average resulted from the effort of investors to take advantage, in an unattractive investment market, of the chance to place their money where it would earn 4½ or even 5 per cent, free from State income tax.

The chief factor in the new order of things lies in the very much higher limit placed on the amount of money which a savings bank may accept on an account. Some States never had a limit, but others always have had. Not many years ago the limit in Massachusetts was \$1,000 in deposits and \$1,600 on accumulations. Today to the individual the limit of deposits is \$4,000, with \$8,000 permitted accumulations, and on a joint account, as of partners or husband and wife, \$8,000 in deposits with \$16,000 accumulations. Other States also have increased deposit limits, among them New York. Naturally, persons of larger means are attracted. The wage earner and the small salary man and woman go right on saving for the rainy day, of course, but their deposits no longer dominate the year's receipts through the tellers' windows. The condition of the investment market may decide whether deposits increase rapidly or slowly. Thus the elements of a barometer of business are lacking.

Steel for Railroad Upkeep

THE statement that Class I railroads in the first quarter of this year had capital expenditures of \$55,346,000 for equipment should not be taken to indicate that their expenditures for equipment were at anything like so small a figure. The total mentioned included \$19,771,000 for locomotives, \$18,192,000 for freight cars and \$12,346,000 for passenger cars. For the respective sums only about 250 locomotives and less than 10,000 freight cars could be bought. The chief equipment expenditures of the railroads are for replacements, along the same line that years ago their purchases of rails came to be confined almost wholly to replacement purposes.

As to freight cars, indeed, the statistics for several years have shown almost a balance between retirements and installations, in point of number of cars. The capital outlays in cars are therefore sim-

ply a reflection of the new cars being more serviceable than were the old cars when originally installed. Allowance should be made for increased unit cost.

The total capital outlay of the roads in the first quarter is given at \$155,022,000, leaving approximately \$100,000,000 outside of equipment. This other outlay represents in very large part entirely new work and thus is quite different from the rolling stock outlay. It means a good bit of steel, in bridges and other structures.

In the total capital outlay in the first quarter there was a decrease of 6.4 per cent from the first quarter of 1926 and a decrease of 8.4 per cent from the first quarter of 1925. According to all the testimony the decreases are due to the improved physical condition of the railroads and not to their financial condition having suffered. Indeed, attention has been called of late to the fact that the railroads, or at least some of them, are now able to issue common stock, selling it at par, as required by the Transportation Act, instead of securing funds through bond issues. Rolling stock, of course, is financed largely in still another way, by the issue of car and locomotive trust certificates.

There was a time when the business world seemed to derive satisfaction from observing that the railroads were in poor physical condition, for that meant they would have to spend money, getting it as they could. Nowadays the view is different, excellent railroad service proving better than railroad orders.

The steel industry is getting a large amount of business from the railroads for upkeep, and not so much through capital expenditures. The business proves much steadier and no one is likely to deny that the situation is much pleasanter than was the case in the old days when the railroads used to flood the steel industry with orders when the steel industry was already busy, and withhold orders severely when orders were badly needed.

Steel Rails Growing Better

OBVIOUSLY heat treatment of steel rails greatly improves their quality, and of late railroads and metallurgists in this and other countries have been turning their attention to this field of investigation. On other pages is an illuminating article on some steps the French have been taking. By an ingenious and apparently efficient mechanical device rails have been quenched in water with highly satisfactory results.

In the United States two lines recently have laid in their roadbeds heat-treated rails. One road has used a process quite similar to that described on page 337, and the other employed oil as the quenching medium. It is too early to know full results, but the experiments are significant. Mention should not be omitted in the same connection of the well-known Sandberg process, which has been in use for some time, but involves a less drastic treatment.

Reference has been made from time to time in the past few years to the "medium" or 1.25 to 1.75 per cent manganese rail which may be called the forerunner of alloy steel rails. Its success, if all reports are true, is now well assured. Railroads which have been using these rails on trial are ordering more and other roads are introducing them.

They undoubtedly have properties making them superior to plain carbon rails, even though all the original claims have not been borne out.

In recent months rails containing copper and molybdenum have been made and are now on trial in the road bed of an important system. The molybdenum adds toughness and air-hardening qualities and the copper prevents wear due to corrosion, in addition to other advantages. It may be said also that some heats of rails containing nickel as well as copper and molybdenum are in the program of investigation, and consideration is being given to chromium rails. In the same investigation category is a proposal to make steel wheels containing molybdenum.

All these movements signify that simultaneously railroad engineers and steel metallurgists are blazing new trails in the quest for rails that will develop fewer fissures, that will show a smaller percentage of breakages, that will have a longer life under severer service—advantages that will warrant a higher cost for heat treatment and for alloying metals. But how much higher? Alloy wheels running on alloy steel rails are an attractive prospect. But its realization "on a commercial basis," to speak in familiar terms, means the working out of a new equation between rail prices on the one hand and on the other hand safer travel and longer life for track and equipment.

CORRESPONDENCE

Where the Surplus Factory Labor Goes

To the Editor: The *Pennsylvania Commonwealth* quotes you as asking, forcibly, "What is becoming of the surplus?"—the question referring to the labor set free by the diminished and rapidly diminishing number employed in commodity production. You ask whether they are occupied in "more enjoyment of the luxury of leisure."

Most of these ex-workers are now chauffeurs, amusement makers, bootleggers, prohibition law adjutants, landholders, and so on. Except the landholders, they are still producers, not of commodities, but of the object of commodity production, which is pleasure. Even the landholders amuse, at least, themselves.

BOLTON HALL.

New York, Aug. 8.

[Mr. Hall is the author of "Three Acres and Liberty" and "The New Thrift."—EDITOR.]

Seamless Pipe Mill Starts Rolling

The Jones & Laughlin Steel Corporation has started its new seamless pipe mill at the Aliquippa works, Woodlawn, Pa. The mill, completed and started in exactly seven months from the day ground was broken for the building, is of the automatic type and has a range of from 4 in. to 9 in. outside diameter. Much of the pipe made since the mill started has been 6% in. inside diameter, a size finding heavy use for oil-well casings.

Railroad Earnings Less

Class I railroads report a net operating income in the first six months of 1927 of \$472,611,052. This is a decrease of nearly 5 per cent from last year's total of \$495,598,414. The rate of return this year represents 4.58 per cent per annum, compared with 4.93 per cent last year. The figures are furnished by the Committee on Public Relations of the Eastern Railroads.

Manganese Tariff Helps Leaner Ores

(Concluded from page 336)

Montana and Other Interests Make Large Promises

Getting together as they have, domestic producers, by development of the proper processes, soon will have the industry on its feet, according to Robert E. Dwyer of the Anaconda Copper Co., which has leased manganese ore properties from the Butte Copper & Zinc Co. in Montana. He said these mines are at a disadvantage as to freight rates. Deposits were declared to average 35 per cent manganese content. Through recent developments it has been arranged to produce 70,000 gross tons a year.

W. C. Siderfin, Philipsburg, Mont., vice-president of the Clark Mountain Realty Co., said properties of that company showed 100,000 tons or more of developed ore and that a further supply can be developed. J. H. Cole, president of the Domestic Manganese Development Co., Philipsburg, told of the work of his company in the Butte district on which it is spending \$400,000. About Nov. 1 it will be shipping 50 to 60 per cent ore. The company first uses the magnetic separator, then the rotary kiln for nodulizing. If the tariff is continued it can supply one-half of the domestic requirements. John Hickey, Moorlight Mining Co., Philipsburg, said that his company can be depended upon for a large production next year.

D. H. McClosky, New York, Brown Mountain Mining Co., with properties in the Staunton, Va., district, estimated reserves there of 500,000 tons, ranging from 25 per cent to 46 per cent in manganese on concentration. Encouragement in the way of the tariff and research, he said, are needed to develop the domestic industry. He urged cooperation with Government bureaus.

Mr. Miller pointed to the development of the Bradley process at the University of Minnesota, which results in an unusually high-grade ore. Mr. Branner said that any fair and reasonable program of the domestic producers will be given the support of the Governor of Arkansas. Production in that State, he added, promises development through the beneficiation of manganese bearing ores. Reserves were declared to be greater than had been estimated in the past.

Concentration of Manganiferous Ores

Carl Zapffe, traffic manager of the Northern Pacific Railroad at Brainerd, Minn., spoke of the manganiferous ores of the Lake Superior regions, especially in the Cuyuna range, where the manganese content ranges from 2 to 20 per cent. He believes that through beneficiation domestic producers of manganese ore will reach the point of supplying uniform grades.

E. F. Burchard, United States Geological Survey, told of the work of the Survey in discovering deposits of manganese ore and the possibilities ahead. Other Government representatives spoke, stressing the need of developing processes for bringing low-grade ores up to standard.

Francis P. Sinn, New Jersey Zinc Co., said his company is now producing spiegeleisen, but not high-grade ferromanganese, though if the tariff is continued it will make an effort to produce the latter.

Roger Taylor of the War Department pointed out that as a matter of national defense it is vital that high grade manganese be obtained, tariff or no tariff. He expressed the hope that "whoever is right will carry the day and do it quickly." He asked the domestic producers to keep the War Department informed of its work. Mr. Winslow of the Chamber of Commerce of the United States said that the Chamber has taken no position as yet regarding a tariff on manganese ore, but that there is a chance of the business interests of the country getting behind the movement of domestic producers.

In adopting its articles of organization, the Domestic Manganese Producers' Association provided for cooperation with interested Government bureaus, establishment of headquarters in Washington and holding of annual meetings on the second Monday of September, the place to be selected by the executive committee. Committees on tariff, research, publicity and transportation will be named.

Iron and Steel Markets

Slight Decline in Steel Output

In Orders and Shipments August Will Closely Approach

July—Structural Steel Sharply Competitive—

Pig Iron Prices Near Low Point

A STEEL ingot output in July less than in any month since July, 1925; some gain in unfilled finished steel orders last month; continuing weakness in prices of heavier materials, particularly structural shapes, and a slight further falling off in steel production are the main market factors of the week.

Under these conditions the steel trade expects August to be much like July in new orders and shipments, whereas a year ago, under expanding demand, the largest August output on record was reached—4,004,583 tons.

At 3,178,342 tons, last month's steel production averaged 127,134 tons a day for the 25 days, or 4.7 per cent less than the June rate, confirming what was reported from week to week of a continuous flow of small orders and little change in the rate of steel consumption.

Unfilled orders of the Steel Corporation on July 31, to be published on Wednesday, are estimated at roundly 100,000 tons more than on June 30. Orders booked last month showed a small increase upon the June rate and shipments were about 3000 tons a day less than in June.

With this week's ingot production of the Steel Corporation at 67 per cent, against 70 per cent a week ago, the industry as a whole is probably running at 60 to 65 per cent of capacity. The rate for the entire Chicago district, which for a long time has been well above the average for the country, is down this week to 67 per cent because of lessened shipments to the railroads.

Improvement this month in structural steel demand brought fabricated awards up to 39,000 tons, of which 3500 tons was for a New York office building, 11,300 tons for other miscellaneous work in New York, 4000 tons for an American Rolling Mill Co. addition at Middletown, Ohio, and 3000 tons for a Baltimore hotel. Among the new projects are two Pacific Coast business buildings calling for 5500 tons.

More attention is drawn this week to the fact that makers of bars, plates and shapes are willing to extend to small buyers prices heretofore quoted on orders of several hundred tons. The sharp competition on structural shapes noticed for some weeks has now extended to Chicago. Building is in good volume—larger in some districts—yet fabricators continue to cut prices and then turn to the steel companies for corresponding concessions.

A large line pipe order is timely, the Roxana Petroleum Co., St. Louis, closing for 76 miles of 6-in. and 220 miles of 10-in.—about 25,000 tons in all. Pipe business generally is slow, but at Chicago oil tank work calling for 8300 tons has just been placed.

Sheet and strip makers who had expected to receive by this time good preliminary orders from the automotive industry now look for action in late August or early September.

A Great Northern inquiry for 8000 tons of steel for underframes has come up at Chicago, and 300 mine cars have been placed by two roads. Tie plate and angle bar inquiries amount to 26,500 tons.

In view of their much reduced production schedules, car builders have gone vigorously after export business. The Chile Exploration Co. has placed 150 ore cars with domestic shops and a Brazilian order calls for 220 cars. Buenos Aires is inquiring for 700.

Pig iron buying, although in fair volume, particularly at Buffalo and along the Eastern seaboard, has brought out further reductions in prices. In New England and at New York, where sales totaled 25,000 tons and 15,000 tons respectively, Buffalo foundry iron declined 50c. a ton to \$16, furnace. At Philadelphia a steel company bought 30,000 tons of basic iron at \$20, delivered, a reduction of 75c. and the lowest price paid since July, 1924.

In the Valleys surplus stocks of steel works iron are more of a market factor and foundry iron has dropped 50c. a ton to \$17.50, furnace, while basic iron is off 25c. Sales at Chicago totaled 40,000 tons for the second consecutive week following a recent price reduction. In Southern foundry pig iron there is shading of the \$17.25, Birmingham, price to which the market declined early in July, and \$16.75 has been done in the past week.

A round lot of Indian basic pig iron has been bought for eastern Pennsylvania consumption at a price figuring back to about \$14, f.o.b. Calcutta.

The week's low-priced sales of pig iron have carried THE IRON AGE composite price down to \$18.13, from \$18.34 last week. It is now within 11c. of the lowest price (February, 1922) in more than ten years. The finished steel composite remains at 2.367c. per lb. for the ninth week.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous

Pig Iron, Per Gross Ton:	Aug. 9, 1927	Aug. 2, 1927	July 12, 1927	Aug. 10, 1926
No. 2, fdy., Philadelphia..	\$20.76	\$20.76	\$21.26	\$21.76
No. 2, Valley furnace.....	17.50	18.00	18.00	17.50
No. 2, Southern, Cin'ti....	20.94	20.94	20.94	24.19
No. 2, Birmingham.....	17.25	17.25	17.25	21.00
No. 2 foundry, Chicago*....	19.50	19.50	20.00	21.00
Basic, del'd eastern Pa....	20.00	20.75	20.75	21.00
Basic, Valley furnace.....	17.25	17.50	17.50	17.50
Valley Bessemer, del. P'gh	20.26	20.26	20.26	19.76
Malleable, Chicago*.....	19.50	19.50	20.00	21.00
Malleable, Valley.....	17.50	18.00	18.00	17.50
Gray forge, Pittsburgh....	18.76	19.26	19.26	18.76
L. S. charcoal, Chicago....	27.04	27.04	27.04	29.04
Ferromanganese, furnace..	90.00	90.00	90.00	88.00

Rails, Billets, etc., Per Gross Ton:

	Aug. 9, 1927	Aug. 2, 1927	July 12, 1927	Aug. 10, 1926
O.-h. rails, heavy, at mill.	\$43.00	\$43.00	\$43.00	\$43.00
Light rails at mill.....	36.00	36.00	36.00	34.00
Bess. billets, Pittsburgh..	33.00	33.00	33.00	35.00
O.-h. billets, Pittsburgh..	33.00	33.00	33.00	35.00
O.-h. sheet bars, P'gh....	34.00	34.00	33.50	36.00
Forging billets, P'gh.....	39.00	39.00	39.00	40.00
O.-h. billets, Phila.....	38.30	38.30	38.30	40.30
Wire rods, Pittsburgh....	43.00	43.00	42.00	45.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb.	1.80	1.80	1.80	1.90

Finished Iron and Steel,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia....	2.12	2.12	2.12	2.22
Iron bars, Chicago.....	2.00	2.00	2.00	2.00
Steel bars, Pittsburgh....	1.80	1.80	1.80	2.00
Steel bars, Chicago.....	2.00	2.00	2.00	2.10
Steel bars, New York....	2.14	2.14	2.14	2.34
Tank plates, Pittsburgh..	1.80	1.80	1.80	1.90
Tank plates, Chicago.....	2.00	2.00	2.00	2.10
Tank plates, New York...	2.09	2.09	2.09	2.24
Beams, Pittsburgh.....	1.80	1.80	1.80	2.00
Beams, Chicago.....	2.00	2.00	2.00	2.10
Beams, New York.....	1.95	2.04	2.04	2.34
Steel hoops, Pittsburgh..	2.30	2.30	2.30	2.50

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Sheets, Nails and Wire,	Aug. 9, 1927	Aug. 2, 1927	July 12, 1927	Aug. 10, 1926
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 24, P'gh	3.00	3.00	3.00	2.95
Sheets, black, No. 24, Chi-				
cago dist. mill.....	3.10	3.10	3.10	3.10
Sheets, galv., No. 24, P'gh	3.85	3.85	3.85	3.75
Sheets, galv., No. 24, Chi-				
cago dist. mill.....	3.95	3.95	3.95	3.95
Sheets, blue, 9 & 10, P'gh.	2.25	2.25	2.25	2.30
Sheets, blue, 9 & 10, Chi-				
cago dist. mill.....	2.35	2.35	2.35	2.40
Wire nails, Pittsburgh....	2.55	2.55	2.50	2.65
Wire nails, Chicago dist.				
mill.....	2.60	2.60	2.55	2.70
Plain wire, Pittsburgh....	2.40	2.40	2.40	2.50
Plain wire, Chicago dist.				
mill.....	2.45	2.45	2.45	2.55
Barbed wire, galv., P'gh..	3.25	3.25	3.20	3.35
Barbed wire, galv., Chi-				
cago dist. mill.....	3.30	3.30	3.25	3.40
Tin plate, 100 lb. box, P'gh	\$5.50	\$5.50	\$5.50	\$5.50

Old Material, Per Gross Ton:

Heavy melting steel, P'gh.	\$15.25	\$15.25	\$15.00	\$17.50
Heavy melting steel, Phila.	13.50	13.00	13.50	16.00
Heavy melting steel, Ch'go	12.50	12.50	12.00	14.00
Carwheels, Chicago.....	14.50	14.50	13.50	16.00
Carwheels, Philadelphia..	15.00	15.00	15.00	17.50
No. 1 cast, Pittsburgh....	15.00	15.00	15.00	16.50
No. 1 cast, Philadelphia..	16.00	16.00	16.00	17.50
No. 1 cast, Ch'go (net ton)	15.00	15.00	14.50	17.00
No. 1 RR. wrot, Phila....	15.50	15.50	16.00	18.00
No. 1 RR. wrot, Ch'go (net)	12.00	12.00	11.25	13.50

Coke, Connellsville,

Per Net Ton at Oven:

Furnace coke, prompt....	\$3.00	\$3.00	\$3.00	\$2.85
Foundry coke, prompt....	4.00	4.00	4.00	4.00

Metals,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York...	13.50	13.37½	12.62½	14.62½
Electrolytic copper, refinery	13.12½	13.00	12.37½	14.25
Zinc, St. Louis.....	6.32½	6.40	6.17½	7.30
Zinc, New York.....	6.67½	6.75	6.52½	7.65
Lead, St. Louis.....	6.52½	6.45	5.95	8.75
Lead, New York.....	6.80	6.60	6.20	9.00
Tin (Strait), New York..	65.12½	65.50	63.50	66.00
Antimony (Asiatic), N. Y.	12.00	12.25	11.75	17.00

Pittsburgh

Steel Market Is Spotty—Pig Iron Prices Drop—Large Pipe Order

PITTSBURGH, Aug. 9.—Actual improvement in steel business is still a hope deferred. The general market situation, viewed from the angle of sales, production or prices is still spotty, in that it cannot be said to be dull or active, with some manufacturers running better than others, and when it comes to prices, there too will be found a variation of tone. If there is apparent firmness in some products, it is usually found that there is not enough demand to provide a real test of prices. In bars, plates and shapes, 1.80c., base Pittsburgh, is now the general price on ordinary tonnages down to single carloads, most makers needing business badly enough to be willing to extend what hitherto has been regarded as a fair-sized tonnage price to small-lot buyers. Price competition is not entirely absent in pipe, and there seems to have been enough advance coverage in nails, barbed wire and staples to obviate the necessity of fresh purchases at prices now quoted.

Steel works operations also show considerable variation. They are averaging about 70 per cent in the Pittsburgh district proper, but in Wheeling, Youngstown and Johnstown the rate is nearer 60 per cent of capacity. It is still true that the Steel Corporation's steel-making subsidiary is doing somewhat better than the independent companies.

Some increase in interest in the pig iron market on the part of melters has been accompanied by increased desire by producers to sell, and a better inquiry, instead of producing price firmness, has been attended by a decline of 50c. a ton in foundry iron and

some weakening in Valley basic iron prices. The scrap market is firm, but this condition still owes its existence to short covering by dealers rather than to any gain in the consumptive demand. Paring of output, rather than a material enlargement of demand, accounts for a firm market in coal and coke.

Pig Iron.—After ruling steady for a period of fully eight weeks, the market in the past week has weakened and foundry iron is now quotable at \$17.50, Valley furnace, for No. 2 grade, on lots of more than a carload, while \$18 is strictly the carload lot price. Malleable iron also is quotable 50c. lower, and Valley basic iron prices have yielded to the competition provided by furnaces at nearby points. It develops that the American Steel Foundries placed the basic iron it recently inquired for at \$18.01, delivered Alliance, Ohio, and that in the effort to secure this business some Valley furnaces quoted \$17.25, furnace, or \$18.38, delivered. Some makers are still quoting \$17.50, but the lower quotations against that inquiry must be recognized as part of the quotable market. Sales of about 1000 tons of Bessemer iron, comprising six separate purchases, have been made at \$18.50, Valley furnace. The fresh downswing in foundry iron prices is a little surprising in view of the fact that inquiries lately have been fairly numerous and among the sales was one of 1000 tons of No. 2X grade. It was the competition for this lot that definitely broke the price.

Prices per gross ton, f.o.b. Valley furnace:

Basic.....	\$17.25 to \$17.50
Bessemer.....	18.50
Gray forge.....	17.00 to 17.50
No. 2 foundry.....	17.50 to 18.00
No. 3 foundry.....	17.00 to 17.50
Malleable.....	17.50 to 18.00
Low phosphorus, copper free....	27.50 to 28.00

Freight rate to the Pittsburgh or Cleveland district, \$1.76.

Ferroalloys.—Specifications on contracts for high grade ferrosilicon are well up to monthly quotas, but this is not the case with ferromanganese or spiegel-eisen. For these alloys contract buyers are showing a tendency to specify in strict accordance with actual needs, which are light just now because of the fact that steel makers generally are reducing raw material inventories and are meeting a larger percentage of their requirements from stocks. A large steel company is again reported to be soliciting orders for ferromanganese. Prices are unchanged.

Semi-Finished Steel.—Demand for billets, slabs and sheet bars, as typified by specifications, is slow, and new business amounts to little, since there are few users who are not definitely tied up with regular sources of supply. Business in sheets and strips lacks volume, and the needs in crude steel of non-integrated manufacturers are in keeping with that fact. Light demand is being met by curtailed output, however, and prices are being maintained. A fair movement of skelp on contracts is reported. Few of the current shipments of wire rods carry today's price of \$43, base Pittsburgh or Cleveland, since a good amount of coverage was given buyers before that price was announced.

Rails and Track Supplies.—The Chesapeake & Ohio Railway and the Atlantic Coast Line each have an inquiry out for 12,000 tons of tie plates. Some of the tonnage in the former inquiry will probably be placed with Pittsburgh district mills, but the Atlantic Coast Line is expected to award its requirements to Southern mills. Current business in track accessories is slow, and, while prices are steady, they are really untested. Light-section rails rolled from billets are moving rather steadily in small lots at \$36, base. The buying movement in standard-section rails has not yet started.

Bars, Plates and Shapes.—Bars are making the poorest showing of these products from the viewpoint of sales, and manufacturers have such light order books that they find it difficult to maintain a firm stand on prices even for single carloads. There is still a quotation of 1.85c., base Pittsburgh, on steel bars, but 1.80c. appears to be all that is obtainable, and on plates and shapes the ordinary tonnage price is now very generally 1.80c., base Pittsburgh, instead of 1.85c. Some mills are insisting on 1.85c. for small shapes, but others will take orders on the bar base. In the aggregate, mill bookings show some increase over those for the early part of July, but the tendency of buyers to confine purchases to actual needs for early delivery is still marked. Barges and line pipe still furnish most of the tonnage on plate mill schedules. Structural steel lettings are lighter, and inquiries are fewer than they were recently.

Wire Products.—Business is not active, and yet in volume it makes a fairly favorable comparison with average bookings at this particular period in the past few years. Shipments of nails, barbed wire and staples generally carry the prices prevailing prior to June 27, and as buyers were given liberal coverage before the advance of \$1 a ton on that date, present prices have

not yet been seriously tested. The oft-repeated statement that \$2.50, base per keg Pittsburgh or Cleveland, for bright nails has not disappeared, is true to the extent that it is the ruling contract base price, but on new business the mills here are all quoting \$2.55. Mill operations are averaging about 50 per cent of capacity.

Tubular Goods.—Fresh interest in line pipe has served to relieve an otherwise quiet and featureless market situation. The Roxana Petroleum Co., St. Louis, has closed for 76 miles of 6-in. and 220 miles of 10-in. plain-end pipe. The order, amounting to approximately 25,000 tons, is understood to have gone to a Youngstown maker. The Amarillo-Denver gas pipe line, which will take about 250 miles of 22-in. pipe and almost as much mileage in smaller sizes, is still regarded as pending, although a definite agreement as to the price to be charged for the gas in Denver and its environs is yet to be reached and this detail must be settled before the line is laid. Buttwelded pipe is moving steadily, but lapwelded pipe, notably for oil country use, is slow. Seamless pipe appears to be in better demand, as one company making that line is again active after a shutdown, broken only by brief and limited operations, since the early summer, and the Jones & Laughlin Steel Corporation has completed and now is operating its seamless pipe unit, ground for which was broken only last December. Line pipe prices are highly competitive, and all companies are not strictly observing the card discounts on buttwelded pipe, although deviations are not common enough to prompt expectations of a new card.

Sheets.—Some interest in future supplies is evident on the part of manufacturing consumers, many of whom are seeking information as to fourth quarter prices, but jobbers are still content to cover their requirements as they arise and to place full dependence upon the ability of the mills to make deliveries as promptly as they are needed. Total business is not yet a tax upon productive capacity, but mills continue to hold to the idea that a small business at prices that show a slight profit is preferable to larger bookings at unprofitable prices. Automobile builders are placing slightly larger tonnages of some of the kinds of steel they use, but have not materially increased their body sheet specifications. Electrical sheets are moving well and a fair amount of business is coming from the metal furniture manufacturers, but users of the common finishes are cautious and are exerting considerable pressure against prices, even placing business with infrequent sources of supply with the evident intent of making those regularly drawn upon believe that they have been able to buy to better advantage elsewhere. Mill operations continue to hover around 70 per cent of capacity.

Tin Plate.—The market is slow, with new business of small compass and with no great pressure for deliveries against contracts. Weather conditions have cut down the quantity of vegetables to be packed, and this, on top of the fact that a good many canneries are not operating this year for financial reasons, probably means that a good part of the tin plate required for

THE IRON AGE Composite Prices

Finished Steel Aug. 9, 1927, 2.367c. a Lb.

One week ago.....	2.367c.
One month ago.....	2.367c.
One year ago.....	2.431c.
10-year pre-war average.....	1.689c.

Based on steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 86 per cent of the United States output of finished steel.

High		Low	
1927	2.453c., Jan. 4;	2.339c., April 26	
1926	2.453c., Jan. 5;	2.403c., May 18	
1925	2.560c., Jan. 6;	2.396c., Aug. 18	
1924	2.789c., Jan. 15;	2.460c., Oct. 14	
1923	2.824c., April 24;	2.446c., Jan. 2	

Pig Iron Aug. 9, 1927, \$18.13 a Gross Ton

One week ago.....	\$18.34
One month ago.....	18.59
One year ago.....	19.46
10-year pre-war average.....	15.72

Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

High		Low	
1927	\$19.71, Jan. 4;	\$18.13, Aug. 9	
1926	21.54, Jan. 5;	19.46, July 13	
1925	22.56, Jan. 13;	18.96, July 7	
1924	22.88, Feb. 26;	19.21, Nov. 3	
1923	30.86, March 20;	20.77, Nov. 20	

Mill Prices of Finished Iron and Steel Products

Iron and Steel Bars

Soft Steel

Base Per Lb.

F.o.b. Pittsburgh mills	1.80c.
F.o.b. Chicago	2.00c.
Del'd Philadelphia	2.12c.
Del'd New York	2.14c.
Del'd Cleveland	1.99c.
F.o.b. Cleveland	1.80c. to 1.85c.
F.o.b. Birmingham	1.95c. to 2.05c.
C.i.f. Pacific ports	2.35c.
F.o.b. San Francisco mills	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills	1.80c. to 1.90c.
F.o.b. Birmingham	1.95c. to 2.05c.

Rail Steel

F.o.b. mill	1.65c. to 1.80c.
F.o.b. Chicago	1.90c.

Iron

Common iron, f.o.b. Chicago	2.00c.
Refined iron, f.o.b. P'gh mills	2.75c.
Common iron, del'd Philadelphia	2.12c.
Common iron, del'd New York	2.14c.

Tank Plates

Base Per Lb.

F.o.b. Pittsburgh mills	1.75c. to 1.80c.
F.o.b. Chicago	2.00c.
F.o.b. Birmingham	1.90c. to 2.00c.
Del'd Cleveland	1.99c.
Del'd Philadelphia	2.07c. to 2.12c.
Del'd New York	2.09c. to 2.14c.
C.i.f. Pacific ports	2.25c. to 2.30c.

Structural Shapes

Base Per Lb.

F.o.b. Pittsburgh mills	1.75c. to 1.80c.
F.o.b. Chicago	2.00c.
F.o.b. Birmingham	1.90c. to 2.00c.
Del'd Cleveland	1.99c.
Del'd Philadelphia	1.90c. to 2.02c.
Del'd New York	1.90c. to 2.04c.
C.i.f. Pacific ports	2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

Base Per Lb.

All gages, narrower than 6 in., P'gh	2.30c.
All gages, 6 in. to 12 in., P'gh	2.10c.
Nos. 13 and 14 gage, 12 in. to 14 in., P'gh	2.30c.
Nos. 15 and 16 gage, 12 in. to 14 in., P'gh	2.40c.
All gages, narrower than 6 in., Chicago	2.40c. to 2.60c.
All gages, 6 in. and wider, Chicago	2.20c. to 2.50c.
Cotton ties, per bundle 45-lb. out of stock	
f.o.b. Atlantic ports	\$1.21
Cotton ties, per bundle 45-lb. out of stock	
f.o.b. Gulf ports	\$1.20

*Mills follow plate or sheet prices according to gage on wider than 14 in.

Cold-Finished Steel

Base Per Lb.

Bars, f.o.b. Pittsburgh mills	2.20c. to 2.30c.
Bars, f.o.b. Chicago	2.30c.
Bars, Cleveland	2.30c. to 2.35c.
Shafting, ground, f.o.b. mill	2.45c. to 2.90c.
Strips, under 12 in., f.o.b. P'gh mill	3.25c.
Strips, under 12 in., f.o.b. Cleveland mills	3.25c.
Strips, under 12 in., delivered Chicago	3.55c.
Strips, under 12 in., f.o.b. Worcester mill	3.40c.
Stripsheets, 12 in. and wider, Pittsburgh mill	3.00c.
Stripsheets, 12 in. and wider, Cleveland mill	3.00c.
Stripsheets, 12 in. and wider, del'd Chicago	3.30c.

*According to size.

Wire Products

(To jobbers in car lots, f.o.b. Pittsburgh and Cleveland)

Base Per Keg

Wire nails	\$2.55
Galvanized nails	4.55
Galvanized staples	3.25
Polished staples	3.00
Cement coated nails	2.55

Base Per 100 Lb.

Bright plain wire, No. 9 gage	\$2.40
Annealed fence wire	2.55
Spring wire	3.40
Gal'd wire, No. 9	3.00
Barbed wire, gal'd	3.25
Barbed wire, painted	3.00
Chicago district mill and delivered Chicago prices are \$1 per ton above the foregoing. Birmingham mill prices \$3 a ton higher; Worcester, Mass., mill \$3 a ton higher on production of that plant; Duluth, Minn., mill \$2 a ton higher; Anderson, Ind., \$1 higher.	

Woven Wire Fence

Base to Retailers Per Net Ton

F.o.b. Pittsburgh	\$65.00
F.o.b. Cleveland	65.00
F.o.b. Anderson, Ind.	66.00
F.o.b. Chicago district mills	67.00
F.o.b. Duluth	68.00
F.o.b. Birmingham	68.00

Sheets

Blue Annealed

Base Per Lb.

Nos. 9 and 10, f.o.b. Pittsburgh	2.25c.
Nos. 9 and 10, f.o.b. Chicago dist. mill	2.35c.
Nos. 9 and 10, del'd Philadelphia	2.57c.
Nos. 9 and 10, f.o.b. Birmingham	2.40c.

Box Annealed, One Pass Cold Rolled

No. 24, f.o.b. Pittsburgh	3.00c.
No. 24, f.o.b. Ch'go dist. mill	3.10c.
No. 24, del'd Philadelphia	3.32c.
No. 24, f.o.b. Birmingham	3.15c.

Metal Furniture Sheets

No. 24, f.o.b. Pittsburgh, A grade	4.15c.
No. 24, f.o.b. Pittsburgh, B grade	3.95c.

Galvanized

No. 24, f.o.b. Pittsburgh	3.85c.
No. 24, f.o.b. Chicago dist. mill	3.95c.
No. 24, del'd Philadelphia	4.17c.
No. 24, f.o.b. Birmingham	4.00c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	3.00c. to 3.10c.
No. 28, f.o.b. Chicago dist. mill	3.20c.

Automobile Body Sheets

No. 20, f.o.b. Pittsburgh	4.25c.
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Long Ternes

No. 24, 8-lb. coating, f.o.b. mill	4.20c. to 4.30c.
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Tin Plate

Per Base Box

Standard cokes, f.o.b. P'gh district mills	\$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.	5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)

(Per package, 20 x 28 in.)

8-lb. coating I.C.	\$11.40	25-lb. coating I.C.	\$17.30
15-lb. coating I.C.	14.45	30-lb. coating I.C.	18.75
20-lb. coating I.C.	15.80	40-lb. coating I.C.	20.85

Alloy Steel Bars

(F.o.b. Pittsburgh, Chicago or Ohio Mill)

S. A. E. Series

Numbers

Base Per 100 Lb.

2100* (1/4% Nickel, 0.10% to 0.20% Carbon)	\$2.90 to \$5.00
2300 (3 1/4% Nickel)	4.10 to 4.20
2500 (5% Nickel)	5.00 to 5.25
3100 (Nickel Chromium)	3.10 to 3.20
3200 (Nickel Chromium)	4.75 to 5.00
3300 (Nickel Chromium)	6.75 to 7.00
3400 (Nickel Chromium)	6.00 to 6.25
5100 (Chromium Steel)	3.10 to 3.20
5200* (Chromium Steel)	7.00 to 7.50
6100 (Chrom. Vanadium bars)	4.10 to 4.30
6100 (Chrom. Vanad. spring steel)	3.60 to 3.80
9250 (Silicon Manganese spring steel)	3.00 to 3.15

Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)	4.10 to 4.20
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)	4.10 to 4.30
Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)	4.00 to 4.25
Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)	3.20 to 3.30
Chromium Molybdenum spring steel (1—1.25 Chrom., 0.30—0.50 Molybdenum)	4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2 1/2-in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specification, but numbered by manufacturers to conform to S. A. E. system.

Rails

Per Gross Ton

Standard, f.o.b. mill	\$43.00
Light (from billets), f.o.b. mill	36.00
Light (from rail steel), f.o.b. mill	34.00
Light (from billets), f.o.b. Ch'go mill	\$36.00 to \$38.00

Track Equipment

(F.o.b. Mill)

Base Per 100 Lb.

Spikes, 1/2 in. and larger	\$2.80 to \$2.90
Spikes, 1/2 in. and smaller	2.80 to 3.00
Spikes, boat and barge	3.10
Tie plates, steel	2.35
Angle bars	2.75
Track bolts, 1 1/2 in. and 3/4 in.	3.90
Track bolts, 3/4 in. and smaller, per 100 count	70 per cent off list

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Inches	Steel	Black	Galv.	Inches	Iron	Black	Galv.
1/2	45	19 1/2	2 1/2	1 1/2	22	11	89
3/4	51	25 1/2	3 1/2	2	25	11	
1	56	42 1/2	4 1/2	3	30	13	
1 1/4	60	48 1/2	5 1/2				
1 3/4	62	50 1/2					

Lap Weld

2	55	43 1/2	2	23	7
2 1/2 to 6	59	47 1/2	2 1/2	26	11
7 and 8	56	43 1/2	3 to 6	28	18
9 and 10	54	41 1/2	7 to 12	26	11
11 and 12	53	40 1/2			

Butt Weld, extra strong, plain ends

1/2	41	24 1/2	1 1/2 to 3	19	54
3/4	47	30 1/2	2	21	17
1	53	42 1/2	3	28	12
1 1/4	58	47 1/2	1 to 1 1/2	30	14
1 3/4	60	49 1/2			
2 to 3	61	50 1/2			

Lap Weld, extra strong, plain ends

2	53	42 1/2	2	23	9
2 1/2 to 4	57	46 1/2	2 1/2 to 4	29	15
4 1/2 to 6	56	45 1/2	4 1/2 to 6	28	14
7 to 8	52	39 1/2	7 to 8	21	15
9 and 10	45	32 1/2	9 to 12	16	2
11 and 12	44	31 1/2			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1 1/2 points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2 1/2%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2 1/2 points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel	Charcoal Iron
2 to 2 1/4 in.	27
2 1/2 to 2 3/4 in.	37
3 in.	40
3 1/2 to 3 3/4 in.	42 1/2
4 to 13 in.	46

Beyond the above discounts, 7 fives extra are given on lap welded steel tubes and 2 tens to 2 tens and 1 five on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1 1/4 to 1 1/2 in.	52	3 1/2 to 3 3/4 in.	47
1 3/4 in.	36	4 in.	50
2 to 2 1/4 in.	31	4 1/2, 5 and 6 in.	45
2 1/2 to 2 3/4 in.	39		

Hot Rolled

2 and 2 1/4 in.	37	3 1/2 and 3 3/4 in.	53
2 1/2 and 2 3/4 in.	45	4 in.	56
3 in.	51	4 1/2, 5 and 6 in.	51

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Per Cent Off List

Carbon, 0.10% to 0.30%, base	55
Carbon, 0.30% to 0.40%, base	50
Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.	

packers' cans already has been made and shipped. Requirements of the bottle cap manufacturers also have decreased, as there has been no such sale of bottled soft drinks this summer as there would have been if the weather had been normal. It is understood that peach growers and packers on the Pacific Coast have agreed upon a price for the fresh fruit, and a situation which threatened to cut substantially into tin plate requirements has probably been corrected. The idea gains that this year's shipments of tin plate will be 10 per cent smaller than those of 1926. In view of this year's showing and the fact that continuous rolling of tin bars in the break-down stages with its economies in producing costs is an early possibility, there is more than the usual amount of interest in prices to come out late this year on 1928 business.

Cold-Finished Steel Bars and Shafting.—Some increase in the number of orders is noted, and not only the automobile parts makers, but the farm implement manufacturers, are contributing. The orders, however, still lack volume, and it would be an exaggeration to call the market active. The price situation is without change; the large-lot buyers are still getting supplies at 2.20c., base Pittsburgh, but most makers that took small-lot business at that price recently now want 2.30c.

Hoops, Bands and Strips.—The automotive industry is slightly more active as a buyer, but orders, though more numerous, are individually small and there is not much evidence of purchases in advance of requirements. Most consumers still have some low-priced stock to work off, and current purchases for the most part are supplementary. It is believed that stocks in second hands are not large and that any increase in consumption will be reflected in orders to the mills. In the meantime producers are holding firmly to 2.10c., base Pittsburgh or Cleveland, for wide hot-rolled strips, 2.30c., base, for narrow, and to 3.25c., base Pittsburgh or Cleveland, for cold-rolled strips.

Bolts, Nuts and Rivets.—Real activity is lacking in these lines. The reasons are easy to find in the comparatively light operations of the automotive industry and railroad carbuilders, but makers still are firm at the April 1 price schedule and seem content to do less business at a profit than to seek to stimulate buying by price concessions. Large rivets are held at \$3, base per 100 lb., but buyers took advantage of the opportunity to cover for this quarter at \$2.75 and little business has been done at the higher price.

Warehouse Business.—Regular warehouse quotations are holding where they have been for some time, but there is still shading on the heavy products, particularly on orders that are attractive from a tonnage standpoint. Business is fairly active, being helped to some extent by purchases by those who ordinarily deal directly with the mills but who now figure that a car-load purchase would mean additions to stock.

Coke and Coal.—Some seasonal increase in the demand for coal has imparted a slightly firmer tendency to prices. The coke market also is holding well, but

in this case curtailment of production has contributed more to that condition than a larger demand. Spot furnace coke is still to be had at \$3 per net ton at oven, although some producers want more, having little or no surplus over their contract requirements. For shipments over a month or more, \$3.25 is commonly quoted. No change is noted in foundry coke prices, and the price range on coal is unaltered.

Old Material.—Dealers continue to pay high prices in their efforts to cover short sales, but so far there has been little support for the upward movement in prices paid by consumers. The latter recognize that not much cheap scrap is to be had so long as the covering movement lasts, but they also believe that the conditions that have forced prices upward are only temporary. Among those in this district having urgent needs the common tendency is to stay on the sidelines for the present. It is believed that eventually the Buffalo district consumers will get a sufficient reserve of scrap and become less active competitors for the supply of the Detroit district, permitting more of it to go to its former markets. The diversion of Detroit scrap to Buffalo has been a primary cause of the strength of eastern Ohio markets, which has had a sentimental effect upon this market. Compressed sheets have been sold into consumption here at \$15 and are no longer quotable at the usual differential of \$1 a ton under heavy melting steel. The latter grade cannot be sold at more than \$15.50, despite the fact that railroad scrap has sold for delivery against short orders at \$16.35 to \$16.40. The market is firm on machine shop turnings, offerings of which are scant. Heavy breakable cast has been sold at up to \$15.25. In a general way, consumers' prices are about where they were a week ago. The August list of the Norfolk & Western totals 3500 tons.

Prices per gross ton delivered consumers' yards in Pittsburgh and points taking the Pittsburgh district freight rate:

Basic Open-Hearth Furnace Grades:

Heavy melting steel.....	\$15.25 to \$15.50
Scrap rails	14.50 to 15.00
Compressed sheet steel.....	14.50 to 15.00
Bundled sheets, sides and ends..	13.50 to 13.75
Cast iron carwheels	15.00 to 15.50
Sheet bar crops, ordinary.....	15.25 to 15.50
Heavy breakable cast.....	14.75 to 15.25
No. 2 railroad wrought	15.25 to 15.50
Heavy steel axle turnings	13.50 to 14.00
Machine shop turnings	12.00 to 12.50

Acid Open-Hearth Furnace Grades:

Railroad knuckles and couplers..	16.75 to 17.00
Railroad coil and leaf springs..	16.75 to 17.00
Roller steel wheels	16.75 to 17.00
Low phosphorus billet and bloom ends	19.00 to 19.50
Low phosphorus, mill plate.....	18.50 to 19.00
Low phosphorus, light grade.....	16.75 to 17.00
Low phosphorus sheet bar crops..	15.25 to 15.50
Heavy steel axle turnings.....	13.50 to 14.00

Electric Furnace Grades:

Low phosphorus punchings.....	17.00 to 17.50
Heavy steel axle turnings.....	13.50 to 14.00

Blast Furnace Grades:

Short shoveling steel turnings...	12.00 to 12.50
Short mixed borings and turnings	11.00
Cast-iron borings	11.00
No. 2 busheling	10.25 to 10.50

Rolling Mill Grades:

Steel car axles	19.00 to 20.00
No. 1 railroad wrought	12.00 to 12.50

Cupola Grades:

No. 1 cast	15.00 to 15.50
Rails 3 ft. and under.....	16.00 to 16.50

Malleable Grades:

Railroad	15.00 to 15.25
Industrial	14.50 to 14.75
Agricultural	14.00 to 14.25

Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Plates	3.00c.
Structural shapes	3.00c.
Soft steel bars and small shapes.....	2.90c.
Reinforcing steel bars	2.75c.
Cold-finished and screw stock—	
Rounds and hexagons	3.60c.
Squares and flats	4.10c.
Bands	3.60c. to 3.65c.
Hoops	4.00c. to 4.50c.
Black sheets (No. 24 gage), 25 or more bundles	3.75c.
Galvanized sheets (No. 24 gage), 25 or more bundles	4.60c.
Blue annealed sheets (No. 10 gage), 25 or more sheets	3.30c.
Spikes, large	3.30c. to 3.40c.
Small	3.80c. to 5.25c.
Boat	3.80c.
Track bolts, ¾ in. and smaller, per 100 count, 62 ½ per cent off list	
Machine bolts, per 100 count, 62 ½ per cent off list	
Carriage bolts, per 100 count, 62 ½ per cent off list	
Nuts, all styles, per 100 count, 62 ½ per cent off list	
Large rivets, base per 100 lb.....	\$3.50
Wire, black soft annealed, base per 100 lb..	2.90
Wire, galvanized soft, base per 100 lb.....	2.90
Common wire nails, per keg.....	\$2.80 to 2.90
Cement coated nails, per keg.....	2.85 to 2.95

The plant of the Kuebler Foundries, Inc., Easton, Pa., will be sold at auction at 1 p. m. on Aug. 16 under authority of the United States District Court for the Eastern District of Pennsylvania. The plant is in active operation manufacturing malleable castings and will be sold in one lot only. T. A. Mellon is trustee in bankruptcy for the company.

The General Fireproofing Building Products Co., Youngstown, a subsidiary of the Truscon Steel Co., will hereafter be known as the Genfire Steel Co. It was formerly the fireproofing division of the General Fireproofing Co. and was acquired two years ago by the Truscon Co.

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Mill Prices of Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms	
	Per Gross Ton
Rerolling, 4-in. and over.....	\$33.00
Rerolling, under 4-in. to and including 1½-in.	\$33.50 to 34.00
Forging, ordinary	39.00 to 40.00
Forging, guaranteed	44.00 to 45.00

Sheet Bars	
	Per Gross Ton
Open-hearth or Bessemer.....	\$34.00

Slabs	
	Per Gross Ton
8 in. x 2 in. and larger.....	\$33.00
Smaller than 8 in. x 2 in.	34.00

Skelp	
	Per Lb.
Grooved	1.80c. to 1.85c.
Sheared	1.80c. to 1.85c.
Universal	1.80c. to 1.85c.

Wire Rods	
	Per Gross Ton
*Common soft, base.....	\$43.00
Screw stock	\$5.00 per ton over base
Carbon 0.20% to 0.40% ..	3.00 per ton over base
Carbon 0.41% to 0.55% ..	5.00 per ton over base
Carbon 0.56% to 0.75% ..	7.50 per ton over base
Carbon over 0.75%	10.00 per ton over base
Acid	15.00 per ton over base

*Chicago mill base is \$44. Cleveland mill base, \$43.

Prices of Raw Materials

Ores	
Lake Superior Ores, Delivered Lower Lake Ports	
	Per Gross Ton
Old range Bessemer, 51.50% iron.....	\$4.55
Old range non-Bessemer, 51.50% iron.....	4.40
Mesabi Bessemer, 51.50% iron.....	4.40
Mesabi non-Bessemer, 51.50% iron.....	4.25
High phosphorus, 51.50% iron.....	4.15
Foreign Ore, c.i.f. Philadelphia or Baltimore	
	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algeria.....	10.50c.
Iron ore, Swedish, average 66% iron, 9.75c. to 10.00c.	
Manganese ore, washed, 52% manganese, from the Caucasus.....	40c. to 41c.
Manganese ore, Brazilian, African or Indian, basis 50%	40c. to 42c.
Tungsten ore, high grade, per unit, in 60% concentrates	\$10.50 to \$11.00
Per Gross Ton	
Chrome ore, 45 to 50% Cr ₂ O ₃ , crude, c.i.f. Atlantic seaboard.....	\$22.00 to \$24.00
Per Lb.	
Molybdenum ore, 85% concentrates of MoS ₂ , delivered	50c. to 55c.

Ferromanganese	
	Per Gross Ton
Domestic, 80%, furnace or seab'd.....	\$90.00
Foreign, 80%, Atlantic or Gulf port, duty paid	90.00

Spiegeleisen	
	Per Gross Ton Furnace
Domestic, 19 to 21%	\$33.00 to \$34.00
Domestic, 16 to 19%	32.00 to 33.00

Electric Ferrosilicon	
	Per Gross Ton Delivered
50%	\$85.00 to \$87.50
75%	145.00

Per Gross Ton Furnace	
10%	\$35.00
11%	37.00
Per Gross Ton Furnace	
12%	\$39.00
14 to 16%	\$45 to 46.00

Bessemer Ferrosilicon	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
10%	\$34.00
11%	36.00
	Per Gross Ton
12%	\$38.00

Silvery Iron	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
6%	\$26.50
7%	27.50
8%	28.50
9%	30.00
	Per Gross Ton
10%	\$32.00
11%	34.00
12%	36.00

Other Ferroalloys	
Ferrotungsten, per lb. contained metal, del'd	95c. to \$1.05
Ferrochromium, 4 to 6% carbon and up, 65 to 70% Cr., per lb. contained Cr. delivered, in carloads	11.50c.
Ferrovanadium, per lb. contained vanadium, f.o.b. furnace	\$3.15 to \$3.65
Ferrocobaltititanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads.....	\$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton.....	\$91.00
Ferrophosphorus, electric, 24%, f.o.b. Aniston, Ala., per net ton.....	\$122.50

Fluxes and Refractories

Fluorspar	
	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines.....	\$17.00
No. 2 lump, Illinois and Kentucky mines.....	\$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid.....	\$16.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines.....	\$32.50

Fire Clay	
	Per 1000 f.o.b. Works
	First Quality
	Second Quality
Pennsylvania	\$43.00 to \$46.00
Maryland	43.00 to 46.00
New Jersey	50.00 to 65.00
Ohio	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Illinois	43.00 to 46.00
Ground fire clay, per ton	7.00

Silica Brick	
	Per 1000 f.o.b. Works
Pennsylvania	\$43.00
Chicago	52.00
Birmingham	50.00
Silica clay, per ton.....	\$8.50 to 10.00

Magnesite Brick	
	Per Net Ton
Standard sizes, f.o.b. Baltimore and Chester, Pa.	\$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.	40.00

Chrome Brick	
	Per Net Ton
Standard size	\$45.00

Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts	
Per 100 Pieces	
(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)	
	Per Cent Off List
†Machine bolts	70
†Carriage bolts	70
Lag bolts	70
Plow bolts, Nos. 1, 2, 3 and 7 heads.....	70
Hot-pressed nuts, blank or tapped, square.....	70
Hot-pressed nuts, blank or tapped, hexagon.....	70
C.p.c. and t. square or hex. nuts, blank or tapped	70
Washers*	6.75c. to 6.50c. per lb. off list

Bolts and Nuts	
	Per Cent Off List
Semi-finished hexagon nuts.....	70
Semi-finished hexagon castellated nuts, S.A.E.	70
Stove bolts in packages.....	80, 10 and 5
Stove bolts in bulk.....	80, 10, 5 and 2½
Tire bolts	60 and 5

Large Rivets	
	Base per 100 Lb.
(½-In. and Larger)	
F.o.b. Pittsburgh or Cleveland.....	\$2.75 to \$3.00
F.o.b. Chicago	2.85 to 3.10

Small Rivets	
	Per Cent Off List
(¼-In. and Smaller)	
F.o.b. Pittsburgh	70, 10 and 5
F.o.b. Cleveland	70, 10 and 5 to 70 and 10
F.o.b. Chicago	70, 10, 10 and 5 to 70 and 10

Cap and Set Screws	
(Freight allowed up to but not exceeding 50c. per 100 lb. on lots of 200 lb. or more)	
	Per Cent Off List
Milled cap screws.....	80, 10 and 10
Milled standard set screws, case hardened, 80 and 10	80
Milled headless set screws, cut thread.....	80
Upset hex. head cap screws, U.S.S. thread, 85 and 5	85 and 5
Upset hex. cap screws, S.A.E. thread.....	85 and 5
Upset set screws.....	80, 10 and 10
Milled studs	70 and 5

*F.o.b. Chicago, New York and Pittsburgh. †Bolts with rolled threads up to and including ½ in. x 6 in. take 10 per cent lower list prices.

Chicago

Price of Structural Shapes Weakens— Ingot Output Down to 67 Per Cent

CHICAGO, Aug. 9.—Mill prices on finished steel in this territory are lacking in strength, particularly on shapes and plates. On the average run of business, which is in small lots and in mixed sizes, the prevailing schedule seems to be fairly well maintained, but for orders of 400 to 500 tons that make desirable business from the viewpoint of rolling mill schedules there are indications that 1.90c., Chicago, would be accepted. At least one tonnage of shapes has gone at that figure.

New business in finished steel is spotty and does not seem to be evenly distributed, though for the week new sales total close to the average so far this year. Specifications are lighter, due in large measure to the lessened requirements of the railroads, and as a result ingot production has tapered to about 67 per cent of capacity and mill stocks of semi-finished material are being reduced. Large tonnage business, which forms the backbone of heavy mill output, is lacking with the exception of a large order for tank plates and an inquiry from the Great Northern for 8000 tons of steel for underframes, which are to be built in its own shops.

Pig Iron.—Sales of Northern iron have run over 40,000 tons for the second consecutive week. As a general rule buyers are satisfied with going prices, which are unchanged at \$19.50, base furnace, but individual orders do not range above 1000 to 2000 tons. The impression is gaining ground that a real test of the market cannot be had until larger tonnages are inquired for. One buyer has signified his willingness to place 2000 tons at a price below present quotations. A similar offer made a week ago is still open. Fresh inquiry includes 3000 tons from a Chicago melter and two 500-ton lots for delivery in Iowa. A purchaser west of Chicago has ordered 1200 tons of high silicon iron for delivery over the remainder of the year. The silvery market is active only in carlot sales, and specifications are of moderate size. Charcoal iron prices are being held at \$27.04, delivered Chicago.

Prices per gross ton at Chicago:

Northern No. 2 foundry, sil. 1.75 to 2.25	\$19.50
N'th'n No. 1 fdy., sil. 2.25 to 2.75	20.00
Malleable, not over 2.25 sil.	19.50
High phosphorus	19.50
Lake Superior charcoal, averaging sil. 1.50	27.04
Southern No. 2 fdy. (all rail)	23.26
Southern No. 2 (barge and rail)	21.43
Low phos., sil. 1 to 2 per cent, copper free	\$31.50 to 32.00
Silvery, sil. 8 per cent.	33.29
Bessemer ferrosilicon, 14 to 15 per cent	46.79

Prices are delivered consumers' yards except on Northern foundry, high phosphorus and malleable which are f.o.b. local furnace, not including an average switching charge of 61c. per gross ton.

Ferroalloys.—A Chicago user has placed 400 tons of 19 to 21 per cent spiegeleisen at \$33, Hazard, Pa., or \$40.76, delivered. Several spot cars have been sold at the same price. Specifications for ferromanganese are in larger volume, but otherwise the market is dull.

Prices delivered Chicago: 80 per cent ferromanganese, \$97.56; 50 per cent ferrosilicon, \$85 to \$87.50; spiegeleisen, 18 to 22 per cent, \$40.76 to \$41.76.

Plates.—Two orders for tank plates to be used in the oil fields in the Southwest total 8300 tons, and fresh inquiry from that source calls for not less than 3000 tons. The tonnage placed represents business that has long been before the trade but which was not closed because of uncertainty as to how summer consumption of oil refinery products would balance production and also on account of attempts to regulate oil output. The Ryan Car Co. has been given an order by the Fruit Growers Express for 625 underframes, requiring about 1500 tons of plates, shapes and bars. Two other car builders have taken 300 mine cars, and the Chesapeake & Ohio has ordered three mail-baggage cars from the Pullman Car & Mfg. Corporation. Operation of plate mills in this district is steady, but order books are light and producers are having difficulty in arranging rolling schedules, particularly in the wider product, for which

orders are small. Specifications from car builders are heavier, because of releases this week against the Illinois Central orders. The prevailing mill quotations on plates in and around Chicago are unchanged at 2c. Prices are weak in the Southwest and in neutral territory.

Mill prices on plates per lb: 2c., base, Chicago.

Structural Material.—Recent lettings have given small fabricating shops better backlogs, but large shops are in need of heavy tonnage awards. Building contracts in Chicago so far this year are about 9 per cent heavier than in the corresponding period in 1926. It appears, however, that the type of buildings under construction at this time is not the same as a year ago, for less structural steel is now passing through shops than at that time. The Chicago & Eastern Illinois has ordered 750 tons of bridge work from the American Bridge Co., and an addition to the Chicago Club, taken by McClintic-Marshall Co., calls for 700 tons. The Marshall Field & Co. warehouse, Chicago, is temporarily held back because of legal matters pertaining to air rights over the Chicago & North Western tracks. Bids for a bridge across the Mississippi River at Quincy, Ill., were all above the preliminary estimates, and the course that will be taken in regard to its construction is now in doubt. Mill prices on structural material are unchanged at 2c., Chicago.

Mill prices on plain material per lb.: 2c., base Chicago.

Bolts, Nuts and Rivets.—Specifications are running heavier than in July, but the gain is small and the industry as a whole continues to operate at 55 to 60 per cent of capacity. The demand for small rivets is spotty, and prices are weak. New buying of large rivets is in small volume, and specifications against old contracts are unusually light for this time of the year. Quotations on bolts and nuts, which carry a 70 per cent discount off list, are firm, and manufacturers are naming 60 per cent off list for less-than-carload lots in mixed sizes.

Reinforcing Bars.—A feature of the market is the unusually large number of small tonnages that are being placed from week to week. One warehouse accumulated, in the month of July, over 500 tons in orders that averaged well below 25 tons each. Both awards and inquiries are small, but a number of sizable projects are in the making. It is now reported that the Chicago Evening Post building will be constructed of reinforced concrete above the third floor, and grade crossing separation at Milwaukee will require a large tonnage of bars. Efforts to advance prices are stronger. New billet bar quotations are based on 2.30c. per lb., local warehouse, for lots of over 500 tons each, 2.45c. for 50 to 500-ton lots and 2.60c. for less-than-carload orders. Rail steel bar prices are \$4 per ton below those for the mild steel product.

Rails and Track Supplies.—Chicago producers are expecting orders this week against the Chesapeake & Ohio rail inquiry. This railroad is also taking figures on 11,000 tons of tie plates and 3500 tons of angle bars. Actual orders for standard-section rails and track accessories are in small volume, but specifications for track fastenings are liberal and production is holding at a uniform rate. The light rail market is showing more life than for several months. Coal mine operators are coming into the market for small tonnages, and several orders have been placed for copper mines. Rail production in this district does not average above 40 per cent of capacity.

Prices f.o.b. mill, per gross ton: Standard-section open-hearth and Bessemer rails, \$43; light rails, rolled from billets, \$36 to \$38. Per Lb.: Standard railroad spikes, 2.90c.; track bolts with square nuts, 3.90c.; steel tie plates, 2.35c.; angle bars, 2.75c.

Wire Products.—Continued improvement in the agricultural situation strengthens the belief that orders for wire products from the jobbing trade will be fairly well sustained in August, which is usually an extremely dull month. Purchases by the trade in the South are more numerous but do not bulk as large as was expected in view of added requirements in the flood-damaged areas. Orders are lighter from the Middle West, and there is no change in conditions in the Northwest. Recent business placed by jobbers indicates a rounding out of stocks rather than their enlargement. Prompt delivery is expected by buyers, and mills are

carrying well balanced stocks, which are of somewhat larger size than is customary at this time of the year. The railroads appear to have satisfied their immediate needs, and both new buying and specifications for fencing and nails from that source are light. Business from the manufacturing trade is in steady volume. Mill prices are unchanged at \$2.45, base per 100 lb., Chicago, on bright plain wire and \$2.60, base per keg, on nails. Mill prices of wire products are shown on page 357.

Bars.—Soft steel bars still lead other finished steel products in volume of sales. Bookings in bars also exceed shipments. Specifications, the bulk of which are for prompt shipment, are steady and show that there is practically no change in the rate of operations among miscellaneous users of bars. Orders from automobile parts forgers are more numerous, indicating a slight upturn in the automotive industry. Backlogs in alloy steel bars have grown a trifle, but mill operations remain close to 70 per cent of capacity. The iron bar market is dull both as to new buying and specifications. Demand for rail steel bars is more active, both specifications and new buying again being about equal to shipments. The general manufacturing trade is maintaining an even gait, but several of the larger users of rail steel bars, such as the bed industry, have not reached the rate of operations that had been expected by midsummer. Fence post stocks are growing, and several jobbers, anticipating early fall requirements, have entered orders at the mills. Mill prices for hard steel bars are steady at 1.90c., Chicago.

Mill prices per lb.: Soft steel bars, 2c., base, Chicago; common bar iron, 2c., base, Chicago; rail steel bars, 1.90c., base, Chicago.

Cast Iron Pipe.—The United States Cast Iron Pipe & Foundry Co. is reported to have taken 550 tons of 8-in., 250 tons of 12-in. and 400 tons of 16-in. Class C pipe for Milwaukee, Wis., at \$29.90, Birmingham, or \$38.40, delivered. No information is available on a tonnage of 6 to 10-in. pipe that was to have been re-advertised by Glencoe, Ill. The only public inquiry of note this week comes from Chicago and calls for 570 tons of 8-in. pipe, bids on which will be opened Aug. 16. Orders from contractors are holding up well and constitute the most attractive business now coming before the trade. Municipalities on the whole are showing little interest in the market, but it is believed in some quarters that the potential demand is there and that it is being held back in many instances because new officials have recently been elected to office. Deliveries on most sizes of pipe are prompt, and, while foundries generally have full schedules, they are operating chiefly on obligations that accumulated early in the summer and in the late spring.

Prices per net ton, delivered Chicago: Water pipe, 6-in. and over, \$38.20 to \$41.20; 4-in., \$42.20 to \$45.20; Class A and gas pipe, \$4 extra.

Sheets.—Sheet mill backlogs average ten days to two weeks, showing a slight expansion, which is due to a greater extent to curtailed operations because of hot weather rather than to a quickening in demand. Orders bulk as large as in the previous week, but individually they are small and buyers demand prompt shipment. Deliveries on blue annealed and black sheets

are prompt and on galvanized range from two to three weeks. Orders from the South are more numerous, and fresh inquiry from that territory indicates that a further increase in business may be expected. Shipments to light tank manufacturers have expanded, and prices for blue annealed sheets are steady. Production of sheets in this district is holding at 80 per cent of hot mill capacity.

Base prices per lb., delivered from mill in Chicago: No. 24 black, 3.15c.; No. 24 galvanized, 4c.; No. 10 blue annealed, 2.40c. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Cold-Rolled Bars.—Mill prices are steady at 2.30c., Chicago, on the small business that is now coming before the trade. Users' requirements are lighter, and specifications against contracts are pointing downward.

Coke.—August shipments of by-product foundry coke are a shade heavier than in late July. Spot buying is of small proportions at 50c. above the contract prices of \$9.75, local ovens, and \$10.25, delivered in the Chicago switching district.

Old Material.—Tendencies in the Chicago scrap market are varied. A number of grades, including cast iron borings and railroad specialties, are scarce, and dealers are having some difficulty in covering past orders for them. Many other grades, with the possible exception of heavy melting steel, are tending to accumulate, but not at a rapid rate for the reason that shipments of material are slowing down as the summer advances. Further curtailment of steel mill operations has resulted in lessening the flow of old material to that class of users, and there are no indications now that early release orders will set that kind of scrap in motion. Inspection, even by small buyers, is more rigid, and rejections are running high. The trend of prices is mixed and does not give a clear indication of the way in which the market is headed. The Rock Island is advertising 8000 tons, and the Pere Marquette will sell 600 to 1000 tons.

Prices delivered consumers' yards, Chicago:

Per Gross Ton	
Basic Open-Hearth Grades:	
Heavy melting steel	\$12.50 to \$13.00
Shoveling steel	12.50 to 13.00
Frogs, switches and guards, cut apart, and miscellaneous rails.	14.00 to 14.50
Hydraulic compressed sheets....	11.00 to 11.50
Drop forge flashings	9.25 to 9.75
Forged, cast and rolled steel car-wheels	15.50 to 16.00
Railroad tires, charging box size.	15.50 to 16.00
Railroad leaf springs, cut apart..	15.50 to 16.00
Acid Open-Hearth Grades:	
Steel couplers and knuckles.....	14.50 to 15.00
Coil springs.....	15.50 to 16.00
Low phosphorus punchings.....	14.25 to 14.75
Electric Furnace Grades:	
Axle turnings	12.00 to 12.50
Blast Furnace Grades:	
Axle turnings	11.00 to 11.50
Cast iron borings	10.50 to 11.00
Short shoveling turnings.....	10.50 to 11.00
Machine shop turnings	7.50 to 8.00
Rolling Mill Grades:	
Iron rails	13.50 to 14.00
Rerolling rails	15.25 to 15.75
Cupola Grades:	
Steel rails less than 3 ft.....	16.00 to 16.50
Angle bars, steel.....	14.50 to 15.00
Cast iron carwheels	14.50 to 15.00
Malleable Grades:	
Railroad	14.50 to 15.00
Agricultural	13.50 to 14.00
Miscellaneous:	
*Relaying rails, 56 to 60 lb.....	23.00 to 25.00
*Relaying rails, 65 lb. and heavier.	26.00 to 31.00
Per Net Ton	
Rolling Mill Grades:	
Iron angle and splice bars	14.00 to 14.50
Iron arch bars and transoms....	19.00 to 19.50
Iron car axles.....	21.00 to 21.50
Steel car axles.....	18.00 to 18.50
No. 1 railroad wrought	12.00 to 12.50
No. 2 railroad wrought	11.00 to 11.50
No. 1 busheling	10.00 to 10.50
No. 2 busheling	6.00 to 6.50
Locomotive tires, smooth	13.75 to 14.25
Pipes and flues	8.00 to 8.50
Cupola Grades:	
No. 1 machinery cast	15.00 to 15.50
No. 1 railroad cast	14.00 to 14.50
No. 1 agricultural cast	13.50 to 14.00
Stove plate	13.00 to 13.50
Grate bars	11.75 to 12.25
Brake shoes	10.25 to 10.75
*Relaying rails, including angle bars to match, are quoted f.o.b. dealers' yards.	

Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes.....	3.10c.
Soft steel bars	3.00c.
Reinforcing bars, billet steel.....	2.05c. to 2.15c.
Cold-finished steel bars and shafting—	
Rounds and hexagons.....	3.60c.
Flats and squares	4.10c.
Bands	3.65c.
Hoops	4.15c.
Black sheets (No. 24)	3.95c.
Galvanized sheets (No. 24).....	4.80c.
Blue annealed sheets (No. 10).....	3.50c.
Spikes, standard railroad.....	3.55c.
Track bolts	4.55c.
Rivets, structural	3.60c.
Rivets, boiler	3.60c.
	Per Cent Off List
Machine bolts	60
Carriage bolts.....	60
Coach or lag screws.....	60
Hot-pressed nuts, squares, tapped or blank..	60
Hot-pressed nuts, hexagons, tapped or blank.	60
No. 8 black annealed wire, per 100 lb.....	\$3.20
Common wire nails, base per keg..	\$2.85 to 2.95
Cement coated nails, base per keg.....	2.95

New York

Pig Iron Declines—Releases of Spring Steel for Automobile Bumpers

NEW YORK, Aug. 9.—On large sales of pig iron in this district, as well as in New England, prices have suffered. No. 2 plain foundry iron from Buffalo was sold at as low as \$16, furnace, while prices on iron from furnaces east of Buffalo underwent corresponding reductions. Sales in the New York metropolitan district totaled about 15,000 tons for the week. The Thatcher Co., Newark, N. J., which was in the market for 2000 tons of No. 2 plain for its Garwood, N. J., plant, has bought, having placed at least a large part of the tonnage with Buffalo producers. The Bassick Co., Bridgeport, Conn., has closed against its inquiry for 300 to 400 tons of foundry. The H. B. Smith Co., Westfield, Mass., has bought about 15,000 tons of foundry, having divided the tonnage among four makers, one at Buffalo and three east of Buffalo. The Baird Machine Co., Bridgeport, Conn., is inquiring for 800 tons of No. 1X and No. 2X for the fourth quarter. The Richmond Radiator Co., with plants at Norwich, Conn., and Uniontown, Pa., is in the market for 800 tons. Several other inquiries, calling for 500 to 1000 tons each, are pending.

Prices per gross ton, delivered New York district:
 Buffalo No. 2 fdy., sil. 1.75 to 2.25 (all rail).....\$20.91 to \$21.41
 No. 2 plain fdy. (by barge, del'd alongside in lighterage limits N. Y. and Brooklyn).....18.00 to 19.00
 East. Pa. No. 2 fdy., sil. 1.75 to 2.25.....20.89 to 22.02
 East. Pa. No. 2X fdy., sil. 2.25 to 2.75.....21.39 to 22.52
 East. Pa. No. 1X fdy., sil. 2.75 to 3.25.....21.89 to 23.02

Freight rates: \$4.91 from Buffalo, \$1.39 to \$2.52 from eastern Pennsylvania.

Ferroalloys.—Demand for ferromanganese and spiegeleisen is confined entirely to carload and small lots and even these are few and far between. Prices are unchanged at \$90 for ferromanganese and \$34 for the higher grade of spiegeleisen. Specifications on contract are reported not as good as they were last month, and this is also true of other major ferroalloys.

Reinforcing Bars.—The Jones & Laughlin Steel Corporation is supplying approximately 2000 tons of bars for a warehouse in Long Island City, N. Y. No other large jobs have been reported let in the last few days, and there have been no new inquiries of substantial size. Business thus far in August has been considerably behind July, and the situation for the remainder of the month does not seem to be encouraging. Prices are unchanged. Since the reductions earlier in the summer foreign steel has ceased to be such a strong factor in the market, and distributors in this territory have not been called upon to meet the low prices which appeared earlier in the year.

Prices per lb. on billet steel reinforcing bars: From mill, 1.90c., Pittsburgh. Out of New York warehouse, 3.05c. to 3.15c., delivered at job. Out of Youngstown warehouse, 2.40c., Youngstown, or 2.77½c., delivered New York.

Cast Iron Pipe.—The market is very quiet, with continued price shading and keen competition for what little business is developing. Apparently it is an easy matter to obtain a quotation of \$31, Birmingham, for large or medium-large tonnages of 6-in. and larger, and there is indication that even this price is being shaded. Current purchases are largely in small lots. Hartford, Conn., will receive bids on Aug. 15 for 3 miles of 30-in. pipe, the job being open for either reinforced concrete, cast iron pipe or steel pipe. The United States Cast Iron Pipe & Foundry Co. has taken 600 tons of water pipe from Homer, Pa., on which it was reported last week as low bidder. Also the Riverdale Construction Co., New York, has been awarded the contract for a job from the New York Department of Water Supply, Gas and Electricity.

Prices per net ton, delivered New York: Water pipe 6-in. and larger, \$40.25; 4-in. and 5-in., \$45.25; 3-in., \$55.25; Class A and gas pipe, \$4 to \$5 extra.

Finished Steel.—Competition for structural steel orders has broken out afresh, with some sales as low as 1.75c., Eastern mill. Pittsburgh mills to meet this competition would be obliged to sell at less than 1.55c., Pittsburgh. The price structure continues very weak despite the fact that an increasing amount of tonnage is being placed, the first 10 days of August showing a substantial improvement over the first 10 days of July, which was one of the best tonnage months this year. In the first half of the year the amount of fabricated steel work contracted for in the New York district alone, exclusive of subways and bridges, was about 45 per cent larger than in the corresponding period last year; yet prices quoted on fabricated steel this year have been consistently lower, leaving little, if any, profit to the fabricators. One large structural steel

Warehouse Prices, f.o.b. New York

Base per Lb.

Plates and structural shapes.....	3.34c.
Soft steel bars and small shapes.....	3.24c.
Iron bars.....	3.24c.
Iron bars, Swedish charcoal.....	7.00c. to 7.25c.
Cold-finished steel shafting and screw stock—	
Rounds and hexagons.....	4.00c.
Flats and squares.....	4.50c.
Cold-rolled strip, soft and quarter hard,	
5.75c. to 6.25c.	
Hoops.....	4.49c.
Bands.....	3.99c.
Blue annealed sheets (No. 10 gage).....	3.89c.
Long terne sheets (No. 24 gage).....	5.80c.
Standard tool steel.....	12.00c.
Wire, black annealed.....	4.50c.
Wire, galvanized annealed.....	5.15c.
Tire steel, 1½ x ½ in. and larger.....	3.30c.
Smooth finish, 1 to 2½ x ¼ in. and larger.....	3.65c.
Open-hearth spring steel, bases.....	4.50c. to 7.00c.
Machine bolts, cut thread: Per Cent Off List	
¾ x 6 in. and smaller.....	.55 to 60
1 x 30 in. and smaller.....	.50 to 50 and 10
Carriage bolts, cut thread:	
¾ x 6 in. and smaller.....	.55 to 60
¾ x 20 in. and smaller.....	.50 to 50 and 10
Coach screws:	
¾ x 6 in. and smaller.....	.55 to 60
1 x 16 in. and smaller.....	.50 to 50 and 10
Boiler Tubes— Per 100 Ft.	
Lap welded steel, 2-in.....	\$17.33
Seamless steel, 2-in.....	20.24
Charcoal iron, 2-in.....	25.00
Charcoal iron, 4-in.....	67.00

Discounts on Welded Pipe

Standard Steel—	Black	Galv.
½-in. butt.....	46	29
¾-in. butt.....	51	37
1-in. butt.....	53	39
2½-6-in. lap.....	48	35
7 and 8-in. lap.....	44	17
11 and 12-in. lap.....	37	12
Wrought Iron—		
½-in. butt.....	4	+19
¾-in. butt.....	11	+9
1-1½-in. butt.....	14	+6
2-in. lap.....	5	+14
3-6-in. lap.....	11	+6
7-12-in. lap.....	3	+16

Tin Plate (14 x 20 in.)

	Prime	Seconds
Coke, 100 lb. base box.....	\$6.45	\$6.20
Charcoal, per box—	A	AAA
IC.....	\$9.70	\$12.10
IX.....	12.00	14.25
IXX.....	13.90	16.00

Terne Plate (14 x 20 in.)

IC—20-lb. coating.....	\$10.00 to \$11.00
IC—30-lb. coating.....	12.00 to 13.00
IC—40-lb. coating.....	13.75 to 14.25

Sheets, Box Annealed—Black, C. R. One Pass

	Per Lb.
Nos. 18 to 20.....	4.00c.
No. 22.....	4.15c.
No. 24.....	4.20c.
No. 26.....	4.30c.
No. 28*.....	4.45c.
No. 30.....	4.70c.

Sheets, Galvanized

	Per Lb.
No. 14.....	4.35c. to 4.60c.
No. 16.....	4.45c. to 4.70c.
No. 18.....	4.60c.
No. 20.....	4.75c.
No. 22.....	4.80c.
No. 24.....	4.95c.
No. 26.....	5.20c.
No. 28*.....	5.45c.
No. 30.....	5.85c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

producer ascribes the condition as due to "senseless competition among the fabricators and weakness in the price policy of the mills." So far as the mills are concerned, it is stated that the matter is being given serious consideration by some, at least, and there is a tendency toward stronger resistance to concessions, with the thought of obtaining an improvement in prices on fourth quarter business. In other lines of finished steel there is no discernible change either as to volume of business or prices. Fairly substantial orders for spring steel have been placed by manufacturers of automobile bumpers, whose production has been stimulated by the release of bumper orders by two or three leading automobile companies. Prices are being well maintained on sheets and strip steel, while bars and plates show no further weakness, the former remaining at 1.80c., Pittsburgh, and the latter at 1.75c. to 1.80c. Wire nails are now better established at \$2.55 per 100 lb. keg, Pittsburgh.

Mill prices per lb. delivered New York: Soft steel bars, 2.14c.; plates, 2.09c. to 2.14c.; structural shapes, 1.90c. to 2.04c.; bar iron, 2.14c.

Warehouse Business.—Buying from warehouses is at a slightly better rate than was the case during July, but it is confined largely to small orders. Reinforcing bars and structural shapes are probably the most active products. The price situation is unchanged.

Coke.—Specifications for by-product foundry coke have been gaining since early last month, and releases for the current month promise to show a gain of at least 20 per cent over those for July. There has also been a slight increase in specifications for beehive coke. Connellsville foundry coke is slightly weaker, bringing \$4 to \$4.25 per net ton, ovens, while standard furnace coke is quoted at \$3 to \$3.25, ovens. Delivered prices on Connellsville foundry coke are: To northern New Jersey, \$8.03 to \$8.28; to New York or Brooklyn, \$8.79 to \$9.04; to Newark or Jersey City, N. J., \$7.91 to \$8.16. Prices on by-product foundry coke are unchanged at \$9.59 to \$10.77 per net ton, delivered Newark or Jersey City.

Old Material.—Few purchases have been made in the last few days and dealers are watching the price situation very closely. Present quotations are apparently rather firm, and there is not yet any indication of higher prices.

Dealers' buying prices per gross ton, New York:

No. 1 heavy melting steel.....	\$10.00 to \$10.85
Heavy melting steel (yard).....	6.75 to 7.90
No. 1 heavy breakable cast.....	10.75 to 12.50
Stove plate (steel works).....	8.00 to 8.50
Locomotive grate bars.....	8.00 to 8.50
Machine shop turnings.....	6.50 to 7.00
Short shoveling turnings.....	7.00 to 7.50
Cast borings (blast furnace or steel works).....	7.00 to 7.50
Mixed borings and turnings.....	7.00 to 7.50
Steel car axles.....	15.75 to 16.25
Iron car axles (nom.).....	23.00 to 23.50
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	7.75 to 8.25
Forge fire.....	6.50 to 7.00
No. 1 railroad wrought.....	11.50 to 12.00
No. 1 yard wrought, long.....	10.50 to 11.00
Rails for rolling.....	10.25 to 10.75
Cast iron car wheels.....	10.75 to 11.25
Stove plate (foundry).....	9.00 to 9.75
Malleable cast (railroad).....	10.75 to 11.25
Cast borings (chemical).....	11.75 to 12.75

Prices per gross ton, delivered local foundries:

No. 1 machinery cast.....	\$14.00 to \$14.50
No. 1 heavy cast (columns, building materials, etc.), cupola size	12.50 to 13.00
No. 2 cast (radiators, cast boilers, etc.).....	11.50 to 12.00

Washington Steel Co. Buys Mill at Tremont, Mass.

The Washington Steel Co., Washington, Pa., has purchased the equipment, plants and land of the United Shoe Machinery Corporation's Tremont steel mill, West Wareham, Mass. The purchase involves about 120 acres of land, a hydroelectric plant, three open-hearth furnaces with a total capacity of 150 tons daily, a blooming mill and other steel mill equipment.

The Washington Steel Co. will use the plant for the manufacture of special steels and electric steel castings. These products will supplement the established line of charcoal iron sheets, tin plates, terne plates and special alloy steels. It is intimated that a non-corrosive and rust-resisting steel may also be produced at the West Wareham plant under what is known as the "Carman process," owned by the corporation.

Philadelphia

Eastern Steel Mill Buys 30,000 Tons of Basic Iron—Steel Trade Quiet

PHILADELPHIA, Aug. 9.—A steel company has bought 30,000 tons of basic pig iron at \$20, delivered, the low point since July, 1924. It dropped to \$20.50 in October of last year. A round lot of Indian basic iron figures in the week's business, the f.a.s. price in India being about \$14 a ton.

Orders for finished steel products continue so small individually that the price situation, except on structural shapes, is not being tested. Bars, plates, sheets, strip steel and bolts, nuts and rivets are holding steadily, while the recently announced quotation of \$2.55 per 100-lb. keg on wire nails is applying on all new orders, with most users getting shipments on old contracts made at \$2.50 or less. Structural steel orders are showing a slight gain this month compared with last month, but in other lines there is no apparent improvement. The demand for foundry pig iron has picked up slightly in the last week. In scrap the undertone is firmer notwithstanding the lack of important buying.

Plates.—There is scarcely any improvement in the volume of plate buying, and some mills in this district are below a 50 per cent operation. Orders are so small and the service required by buyers is so insistent, particularly as regards quick deliveries, that the price paid is frequently a secondary consideration. On desirable orders some mills will do 1.75c., Pittsburgh, but such orders are few. The general run of business is in less-carload lots. Shipments in two or three days from receipt of order are not unusual.

Pig Iron.—With the purchase of 30,000 tons of basic pig iron, a leading consumer of that grade has taken itself out of the market for three or four months. The business was divided between two producers. The selling price was \$20, delivered, the lowest point that basic iron has reached in this district since July, 1924. A tonnage of Indian basic iron figured in the week's business. The price, it is stated, figured back to \$14 in India. Sales of foundry iron amounted only to a few thousand tons, but this is better than the average during the few weeks preceding. Quotations on foundry iron are usually \$20.50, furnace, for the base grade, but on competitive business furnaces often find it necessary to go to \$20. Competition of New York State and New England furnaces is becoming keener, and salesmen from those producing interests are regularly combing this territory for orders. A barge shipment from New England to a Baltimore melter is in prospect, and is an instance of the sales aggression of the furnaces of nearby territories in reaching out for more business. Buffalo iron at \$16, furnace, is closely competitive with eastern Pennsylvania iron, notwithstanding the high freight rate, which to many points is \$4.91. A merchant furnace in this district which was

Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Plates, 1/4-in. and heavier.....	2.80c. to 3.00c.
Plates, 3/8-in.....	3.00c. to 3.20c.
Structural shapes.....	2.65c. to 3.00c.
Soft steel bars, small shapes and iron bars (except bands).....	2.70c. to 3.20c.
Round-edge iron.....	3.50c.
Round-edge steel, iron finished, 1 1/2 x 1 1/2 in.....	3.50c.
Round-edge steel, planished.....	4.30c.
Reinforcing steel bars, square, twisted and deformed.....	3.00c.
Cold-finished steel, rounds and hexagons.....	4.00c.
Cold-finished steel, squares and flats.....	4.50c.
Steel hoops.....	3.85c. to 4.15c.
Steel bands, No. 12 gage to 3/8-in., inclusive.....	3.60c. to 3.90c.
Spring steel.....	5.00c.
Black sheets (No. 24).....	4.35c.
Galvanized sheets (No. 24).....	5.20c.
Blue annealed sheets (No. 10).....	3.30c.
Diamond pattern floor plates—	
1/4-in.....	5.30c.
3/8-in.....	5.50c.
Rails.....	3.20c.
Swedish iron bars.....	6.60c.

to have gone out of blast soon will remain active, having participated in a large way in the basic tonnage above noted.

Prices per gross ton at Philadelphia:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$20.76 to \$21.26
East. Pa. No. 2X, 2.25 to 2.75 sil.	21.26 to 21.76
East. Pa. No. 1X	21.76 to 22.26
Basic (delivered eastern Pa.)	20.00
Gray forge	20.50 to 21.00
Malleable	21.50 to 22.00
Standard low phos. (f.o.b. New York State furnace)	25.00
Copper bearing low phos. (f.o.b. furnace)	24.50 to 25.00
Virginia No. 2 plain, 1.75 to 2.25 sil.	26.17
Virginia No. 2X, 2.25 to 2.75 sil.	26.67

Prices, except on low phosphorus, are delivered Philadelphia. Freight rates: 76c. to \$1.64 from eastern Pennsylvania furnaces; \$5.17 from Virginia furnaces.

Structural Shapes.—Quotations on shapes have held at about the same level for the past month, but the low prices are applying on a wider range of business. In the absence of large projects, some jobs that did not command the lowest quotations several weeks ago are now being sought more aggressively. Eastern mills have gone as low at 1.75c., mill, though on small orders quotations are usually on the basis of 1.70c., Pittsburgh. No decision has been reached on the general contract for a section of the Broad Street subway, involving 6000 tons of steel. An apartment building in Philadelphia, now out for bids, will take 1500 tons, and an office building at Eddystone, Pa., for the Baldwin Locomotive Works calls for 1200 tons.

Bars.—Fair-sized contracts for reinforcing steel in the past few weeks have helped out mill rollings somewhat, but orders for merchant bars continue small, though fairly numerous. The aggregate is not sufficient, however, for satisfactory mill operation. Mills are adhering to 1.80c., Pittsburgh.

Old Material.—A further improvement in the undertone of the scrap market has developed without any buying of importance. Strength at Pittsburgh is a contributing factor. Turnings from New England are now moving to that district rather than to eastern Pennsylvania because of the higher net price that can be realized. Recent small sales of heavy melting steel to a nearby steel plant at \$13, delivered, probably would not be duplicated. A tonnage of steel scrap now under negotiation has been offered at \$14, delivered, which appears to be the minimum that is acceptable to brokers. On old contracts \$13.50 is being paid. A range of \$13.50 to \$14, therefore, fairly represents the market on this grade. For turnings and bundled sheets \$11 is offered, while stove plate has been sold at \$13.

Prices per gross ton, delivered consumers' yards, Philadelphia district:

No. 1 heavy melting steel	\$13.50 to \$14.00
Scrap T rails	13.00 to 13.50
No. 2 heavy melting steel	11.50 to 12.00
No. 1 railroad wrought	15.50 to 16.00
Bundled sheets (for steel works)	11.00
Machine shop turnings (for steel works)	11.00
Heavy axle turnings (or equivalent)	12.50 to 13.00
Cast borings (for steel works and rolling mill)	11.00
Heavy breakable cast (for steel works)	15.50
Railroad grate bars	13.00
Stove plate (for steel works)	13.00
No. 1 low phos., heavy, 0.04 per cent and under	18.00 to 18.50
Couplers and knuckles	15.50 to 16.00
Rolled steel wheels	15.50 to 16.00
No. 1 blast furnace scrap	10.00 to 10.50
Machine shop turnings (for rolling mill)	10.50 to 11.00
Wrought iron and soft steel pipes and tubes (new specifications)	12.50
Shafting	17.50 to 18.00
Steel axles	19.00 to 20.00
No. 1 forge fire	11.00
Steel rails for rolling	16.00
Cast iron carwheels	15.00 to 15.50
No. 1 cast	16.00 to 16.50
Cast borings (for chemical plant)	15.00 to 16.00

Sheets.—Although sheet mills seem to be holding rigidly to the schedule of prices announced last May, the situation is still lacking in uniformity due to the fact that some large consumers have not used up all of the tonnage contracted for in second quarter, and these obligations in various instances are being permitted to stand on the mill books. Large consumers

who have always enjoyed preferential treatment as to prices are voicing objection to paying the same price as is charged the small buyer, but the mills seem to have stood their ground when put to the test.

Imports.—More than 400 tons of steel was received at Philadelphia from abroad last week, as follows: 125 tons of bars from Sweden; 7 tons of ingots from Sweden; 197 tons of structural shapes from France, 70 tons from Belgium and 9 tons from Germany; 3 tons of strip steel from England. Pig iron imports were 103 tons from India and 100 tons from the Netherlands. Other imports were 2500 tons of chrome ore from India, 1500 tons from Greece, and 198 tons of iron ore from Spain.

Cleveland

Steel Buying by Automobile Industry Is Slow in Developing

CLEVELAND, Aug. 9.—New business is slow in developing among northern and northeastern Ohio mills and furnaces, with the result that mill operations are roughly estimated at 65 per cent of capacity. Sheet and strip makers had expected by this time to receive good preliminary orders from Michigan automobile builders, but so far they have not materialized, although the belief is that they will appear by latter part of August or early September.

Glutting of Duluth coal docks and a slow movement of fuel inland has cut chances of 50 idle vessels to resume Lake trade until next month, if then, while general Lake Superior ore trade is confined to contract vessels and these, in some cases, are one month ahead of schedule.

Pig iron in northern Ohio again has returned to the doldrums after active July selling, but prices are unchanged. The scrap market here has not followed slight advances at Pittsburgh and Chicago except sentimentally among dealers.

Iron Ore.—Receipts of Lake Superior iron ore in July at lower Lake ports aggregated 8,418,045 tons, or 10,030 tons less than in June. Lake Erie ports received 6,136,423 tons in July, or 12,609 tons more than in June, while other than Lake Erie ports took in July 2,281,622 tons, or 136,064 tons less than June. Lake trade authorities expect a further falling off in August. Sales of ore are few and mostly for small lots, although such furnaces as are operating are taking shipments freely against old contracts.

Pig Iron.—Following large July sales, which reached a total of several hundred thousand tons, the northern Ohio market has settled back to mere routine business without quotations having changed. The sale of over 3000 tons of basic inquired for by the American Steel Foundries for Alliance, Ohio, is said to have been made by a nearby producer at around \$17 at furnace with a favoring freight rate to destination. Some small orders are being received from Michigan makers of automobile engine blocks, but the bulk of their tonnage is still to be placed. Ohio foundries as yet uncovered appear indifferent to the market, but furnace men are inclined to be sanguine regarding autumn prospects. However, Valley furnaces are not getting more than \$17.50 for foundry grades and around \$17 for basic. This is particularly true of steel works with surplus

Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes	3.00c.
Soft steel bars	3.00c.
Reinforcing steel bars	2.25c. to 3.00c.
Cold-finished rounds and hexagons	3.65c.
Cold-finished flats and squares	4.15c.
Hoops and bands	3.65c.
Cold-finished strip	5.95c.
Black sheets (No. 24)	3.75c.
Galvanized sheets (No. 24)	4.65c.
Blue annealed sheets (No. 10)	3.25c.
No. 9 annealed wire, per 100 lb.	\$2.90
No. 9 galvanized wire, per 100 lb.	3.35
Common wire nails, base per keg	2.90

*Net base, including boxing and cutting to length.

iron available for market. Cleveland prices on foundry and malleable are unchanged at \$18.50, furnace, for Cleveland delivery and at \$17.50 for outside delivery.

Prices per gross ton at Cleveland:

N'th'n No. 2 fdy., sil. 1.75 to 2.25.....	\$19.00
Southern fdy., sil. 1.75 to 2.25.....	23.25
Malleable	19.00
Ohio silvery, 8 per cent.....	31.50
Basic, Valley furnace.....	17.25
Standard low phos., Valley fur.....	27.50

Prices, except on basic and low phosphorus, are delivered Cleveland. Freight rates: 50c. from local furnaces; \$3 from Jackson, Ohio; \$6 from Birmingham.

Steel Bars.—There are more idle bar mills in northern and eastern Ohio than was the case several months ago, and regular customers are taking only needed tonnages. The same thing appears to be true of alloy steel bars. Generally 1.80c. appears to be holding on soft steel bars but with usual concessions to important consumers.

Semi-Finished Steel.—No larger number of billet and sheet bar contracts are getting to producing mills than when third quarter opened, and consumers are taking only immediate requirements. In fact, few producers have more than a handful of contracts on their books. Quotations appear steady at \$33, Youngstown, for billets and slabs and \$34 for sheet bars.

Steel Sheets.—Orders and specifications are not arriving at mill doors with the expected rapidity. In fact, they are confined this week to routine proportions, thus enabling mills merely to keep active. With resumption of two plants at Niles, Ohio, on Monday, every plant in the Valleys is operating, as is also the case at Cleveland, but at reduced rates. In the Valley district 94 independent units out of 127 started the week, compared with 72 last week, but whether they will be able to complete the week's schedule is a question. Even full-finished automobile body sheet makers are disappointed in the week's mail, having expected some good preliminary orders from Michigan on new model stock. Published prices appear to be firmly held in the Valleys and Cleveland.

Tin Plate.—Northern Ohio mills still report orders irregular in placement and prospects not encouraging, although they are able to run virtually at capacity this week. Reports of price weakness continue to crop out, making the price range below \$5.50 per box a series of irregularities, although it is difficult to confirm these in every instance.

Nuts, Bolts and Rivets.—Third quarter business is developing no new characteristics so far, and Cleveland makers have not chosen to follow Chicago nut and bolt makers in price advances. Plants here are operating around 60 per cent of capacity.

Strip Steel.—Small orders continue to be the rule, and by accumulating them the mills in eastern Ohio are able to keep operating around 80 per cent. The expected release of important specifications for new automobile models tends to keep mill operations uncertain from week to week. Reports received here indicate that Eastern consumers for further manufacture have large stocks of hot-rolled strip, purchased in the favorable price period in second quarter, which may tend to hold back important buying until later. Mill quotations on hot-rolled are around 2.10c., Cleveland and Pittsburgh, and on cold-rolled strip under 12 in., 3.25c., with strip sheets bringing 3c.

Old Material.—Growing strength in other markets, such as Pittsburgh and Chicago, is reflected here only sentimentally among dealers. Consumers are not inclined to pay appreciably higher than present quotations, declaring that they cannot see their way to paying higher prices for scrap until their own business picks up.

Prices per gross ton, delivered consumers' yards:

Basic Open-Hearth Grades	
No. 1 heavy melting steel.....	\$14.00 to \$14.25
No. 2 heavy melting steel.....	13.50 to 13.75
Compressed sheet steel.....	13.25 to 13.50
Light bundled sheet stampings.....	11.50 to 12.00
Drop forge flashings	12.50 to 13.00
Machine shop turnings	9.25 to 9.50
No. 1 railroad wrought.....	11.50 to 12.00
No. 2 railroad wrought.....	13.75 to 14.00
No. 1 busheling	11.50 to 11.75
Pipes and flues	10.00 to 10.50
Steel axle turnings	12.50 to 13.00
Acid Open-Hearth Grades	
Low phosphorus forging crops.....	16.50 to 17.00
Low phosphorus, billet bloom and slab crops	17.00 to 17.50
Low phosphorus sheet bar crops.....	16.00 to 16.50
Low phosphorus plate scrap.....	16.00 to 16.50
Blast Furnace Grades	
Cast iron borings	10.75 to 11.00
Mixed borings and short turnings	10.75 to 11.00
No. 2 busheling	10.75 to 11.00
Cupola Grades	
No. 1 cast	16.50 to 17.00
Railroad grate bars	12.00 to 12.50
Stove plate	12.00 to 12.50
Rails under 3 ft.	18.00 to 18.50
Miscellaneous	
Railroad malleable	15.50 to 16.00
Rails for rolling	16.25 to 16.50

The products covered in the decision are angles, bands, bars, chain, and channel iron, bolts, columns, fittings, boiler flues, girders, hoops, nails, piling, pipe plates, rivets, shafting, sheet steel, tubing and various unfinished iron and steel materials. The complainants were the American Motor Body Corporation, Philadelphia, and others. Iron and steel producers and users throughout the affected territory participated in the proceeding.

The examiner pointed out that there is now under way a general investigation of iron and steel rates and that his findings should be without prejudice to the findings and conclusion that may be reached in that proceeding.

The Kelly-Decker-Cleary Co., 2 Broadway, New York, has been appointed eastern representative by the Great Lakes Chemical Works, Detroit, for its line of non-ferrous metals including Babbitt, solder and type metal, tin, lead, aluminum and zinc.

The Sharon Steel Hoop Co., Sharon, Pa., has purchased from the Carnegie Steel Co. 10 acres of land adjacent to its plant for the partial relocation of its finishing mills and auxiliary departments, such as the pickling plant and machine shop.

The International Federation of the Trade and Technical Press, 38 Cours Albert-Ier, Paris, France, will hold its international congress in Berlin, Germany, Sept. 26-30.

Recommends Lower Rates from Pittsburgh District to Philadelphia

WASHINGTON, Aug. 9.—Fifth-class rates on certain manufactured iron and steel products in carload lots from points in western Pennsylvania, West Virginia, and Ohio to Philadelphia, were held to be unreasonable in a proposed report of Examiner J. J. Williams of the Interstate Commerce Commission, made public last Saturday, which recommends reductions ranging from 3c. to 5c. per 100 lb. He declared that the commission should find that the rates to Philadelphia are unreasonable to the extent they exceed 29c. from Apollo, Beaver Falls, Brackenridge, Carnegie, Economy, Ellwood City, Fallston, Franklin, Munhall, McKeesport, Pittsburgh, Sharpsburg, Vandergrift, Scottdale, and Woodlawn, Pa., Wheeling, Sabraton and Follansbee, W. Va., and Toronto, Ohio; 32.5c. from Ashtabula, Newton Falls, Niles, Youngstown, and Sharon, Ohio, and Farrell, Pa.; 35c. from Canton, Cleveland, Dover, Guernsey, Lorain, Massillon, and New Philadelphia, Ohio; 37.5c. from Mansfield and Ashland, Ohio; 43c. from Addyston and Middletown, Ohio; and 27.5c. from Johnstown, Pa.

Representative of the proposed and present rates to Philadelphia in cents per 100 lb., are the following:

From	Proposed	Present	Reduction
Ashtabula, Ohio.....	32.5c.	37.5c.	5c.
Sharon, Ohio.....	32.5c.	37.5c.	5c.
Beaver Falls, Pa.....	29c.	32c.	3c.
Pittsburgh	29c.	32c.	3c.
Cleveland	35c.	38c.	3c.
Lorain, Ohio.....	35c.	*38c.	3c.
Middletown, Ohio.....	43c.	47c.	4c.
Youngstown, Ohio.....	32.5c.	35.5c.	3c.

*Commodity rate.

San Francisco

Some Mills Advance Plates \$2 a Ton— Market Quiet in All Departments

SAN FRANCISCO, Aug. 6 (*By Air Mail*).—With an advance of \$3 a ton in ocean freight rates on steel shipped from Atlantic ports via the Panama Canal to the Pacific Coast, which became effective Aug. 1, some of the Eastern independent mills have advanced quotations on plates \$2 a ton, and are now quoting 2.40c., c.i.f. Coast ports. The leading interests, however, continue to quote 2.30c., although some of their representatives say that higher asking prices are likely at any time. On both shapes and reinforcing bars most of the Eastern mills continue to quote 2.35c. Because of the small amount of pending business in plates at present, it is believed that it will be somewhat difficult for the mills to obtain 2.40c. Moreover, there is a good deal of doubt, locally, as to whether the so-called conference steamship companies will be able to maintain their present rates when competition becomes keener.

Pig Iron.—Buying is of a routine character, and fresh inquiry is light. Quotations are unchanged.

Prices per gross ton at San Francisco:

*Utah basic	\$25.00 to \$26.00
**Utah foundry, sil. 2.75 to 3.25...	25.00 to 26.00
**Indian foundry, sil. 2.75 to 3.25...	25.00
**German foundry, sil. 2.75 to 3.25...	24.25

*Delivered San Francisco.

**Duty paid, f.o.b. cars San Francisco.

Shapes.—Lettings of fabricated structural steel during the week total 2390 tons, and fresh inquiry calls for about 800 tons. The largest individual award, 850 tons for a bridge at Brewster, Wash., was taken by the Wallace Bridge & Structural Steel Co., Seattle, Wash. The largest individual inquiry is 520 tons for a warehouse for the Los Angeles Harbor Department, San Pedro, Cal., on which bids close Aug. 24. Eastern mills quote plain material at 2.35c., c.i.f. Coast ports.

Plates.—The two outstanding developments of the week in this department of the market have been the unimportance of fresh inquiry and an advance of \$2 a ton on plates, which some of the Eastern independent mills have put into effect following an advance of \$3 a ton in ocean freight rates, Aug. 1. The two leading interests continue to quote plates at 2.30c., c.i.f. Coast ports. Whether they will advance their asking prices or absorb the higher freight rates remains a matter of speculation. The largest individual award of the week, 1000 tons for a combined passenger and freight steamer for the Inter-Island Navigation Co., Honolulu, Hawaii, was taken by the Bethlehem Shipbuilding Corporation.

Bars.—Locally buying of reinforcing bars has been confined to lots of less than 100 tons. In Seattle, Wash., about 1300 tons was reported placed. In Los Angeles, Cal., the county flood control district has rejected all bids on its San Gabriel dam project, which calls for 1200 tons. Plans are being revised, and new bids will be called for in the near future. While prices are not strong, local reinforcing bar jobbers continue to quote as follows: 2.75c. to 2.85c., base, per lb. on lots of 200 tons, and 3c. to 3.10c., base, on less-than-carload lots.

Cast Iron Pipe.—Only one public letting has been reported during the week, namely, 123 tons of 4 and 12-in. monocast iron pipe for Monterey Park, Cal., taken by the American Cast Iron Pipe Co. Fresh inquiry has been light. San Diego, Cal., will open bids Aug. 22 on 156 tons of 6 and 10-in. Class C pipe for street improvement work. Paine, Gallucci & Malone,

Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and structural shapes.....	3.10c.
Soft steel bars.....	3.10c.
Small angles, $\frac{1}{2}$ -in. and over.....	3.10c.
Small angles, under $\frac{1}{2}$ -in.....	3.60c.
Small channels and tees, $\frac{3}{4}$ -in. to 2 $\frac{1}{2}$ -in..	3.70c.
Spring steel, $\frac{1}{2}$ -in. and thicker.....	5.10c.
Black sheets (No. 24).....	3.85c.
Blue annealed sheets (No. 10).....	4.90c.
Galvanized sheets (No. 24).....	5.45c.
Structural rivets, $\frac{1}{2}$ -in. and larger.....	5.50c.
Common wire nails, base per keg.....	\$3.45
Cement coated nails, 100-lb. keg.....	3.45

Tacoma, Wash., are low bidders on 414 tons for the city of Tacoma, and McHugh & Colluccio are low on 100 tons for the same municipality. Quotations on cast iron pipe, 6-in. and larger, are unchanged at about \$43 per ton, f.o.b. dock, San Francisco.

Warehouse Business.—Sales are mostly for immediate requirements and are generally light, although jobbers say there has been some slight improvement since the first of the month. Quotations are unchanged.

Coke.—A local importer expects to receive a shipment of about 4000 tons of English and Continental foundry coke during the coming week. Sales are fair. Quotations are as follows:

English beehive coke, \$16 to \$17 per net ton at incoming dock; English by-product, \$12 to \$13, and German by-product, \$11.50 to \$12.

Toronto

Pig Iron Prices Decline 50c. a Ton—Rail Mills Booked for Six Weeks

TORONTO, ONT., Aug. 9.—In order to cope with outside competition and meet the price of United States sellers in this market, the Canadian price of pig iron has been reduced 50c. per ton on all grades at both Toronto and Montreal. In revising prices producers made no provision for restoring the differential between No. 1 and No. 2 foundry iron. The reduction in prices has not affected the Summerlee and Carron grades imported from Great Britain, which are sold from Montreal warehouse in lots ranging from 5 tons upward and are purchased almost entirely by small consumers or those who require a special grade of iron. The price decline has not stimulated business. Sales for the week were confined entirely to small tonnages for spot delivery. Blast furnace representatives are declining last quarter business at the new prices.

Prices per gross ton:

Delivered Toronto	
No. 1 foundry, sil. 2.25 to 2.75.....	\$23.60
No. 2 foundry, sil. 1.75 to 2.25.....	23.60
Malleable	23.60
Delivered Montreal	
No. 1 foundry, sil. 2.25 to 2.75.....	26.00
No. 2 foundry, sil. 1.75 to 2.25.....	26.00
Malleable	26.00
Basic	25.00
Imported Iron at Montreal Warehouse	
Summerlee	36.00
Carron	36.00

Rails.—In addition to the rail orders recently placed by the Canadian Pacific Railway with the Algoma Steel Corporation, Sault Ste. Marie, Ont., and the Dominion Iron & Steel Corporation, Sydney, N. S., the latter company has just received an order for 3600 tons of rails from Kingston, Jamaica, for use on the Government railways there. The Canadian National Railways will, it is understood, place large rail tonnages early in the fall. The Algoma Steel Corporation reopened its rail mill Aug. 1, and is now rolling rails for the Canadian Pacific Railway. The rail mills of Canada now have sufficient rail business on hand to keep them going on single shift for the next six weeks. The starting up of rail mills will have a stimulating effect on the production of basic pig iron, although it is not expected that additional blast furnaces will be blown in.

Old Material.—The reduction in pig iron prices has not been reflected in any change in the prices of old material. There has been, however, some shading by dealers, but so far they have failed to make any general revision in quotations. Most dealers contend that present prices are at rock bottom and that a change would not stimulate business. Sales for the past week took a general slump. No large purchases have been made, nor are consumers showing any interest in placing contracts. The current demand is confined to such lines as heavy melting steel, turnings and machinery cast. Other lines are moving slowly, and consumers are not showing as much interest as during the first quarter of the year. In the Montreal district dealers report a small domestic demand but a decline in export business. The limited demand for old material in the

Canadian markets has been reflected in a dropping off in the trade between dealers. Dealers are picking up material for direct shipment to consumers but are not adding to their yard holdings. Dealers' buying prices are unchanged.

Dealers' buying prices:		
	Toronto	Montreal
Per Gross Ton		
Heavy melting steel.....	\$10.50	\$9.00
Rails, scrap	11.00	10.00
No. 1 wrought.....	11.00	14.00
Machine shop turnings.....	8.00	7.50
Boiler plate	8.00	8.00
Heavy axle turnings.....	8.50	8.50
Cast borings	8.50	7.50
Steel turnings	8.00	8.00
Wrought pipe	6.00	6.00
Steel axles	15.00	17.00
Axles, wrought iron.....	17.00	19.00
Per Net Ton		
No. 1 machinery cast.....	16.00	18.00
Stove plate	10.00	13.00
Standard carwheels	14.00	16.00
Malleable scrap	14.00	14.00

St. Louis

Pig Iron Sales Increase—Dealer Purchases Support Scrap Market

ST. LOUIS, Aug. 9.—With pig iron sales by the Granite City maker totaling 18,500 tons for the past week, a new buying movement of fair proportions is under way. The sale of 5000 tons of basic iron to a steel plant in the St. Louis district was the principal transaction of the week, while other orders ranged from 100 to 1000 tons. In addition to heavier sales, shipping specifications against orders on file are reported to be increasing. Prices are unchanged.

Prices per gross ton at St. Louis:	
No. 2 fdy., sil. 1.75 to 2.25, f.o.b. Granite City, Ill.....	\$19.50 to \$20.00
Northern No. 2 fdy., delivered St. Louis	21.66
Southern No. 2 fdy., delivered....	21.67
Northern malleable, delivered....	21.66
Northern basic, delivered.....	21.66

Freight rates: \$1c. from Granite City to St. Louis; \$2.16 from Chicago; \$4.42 from Birmingham.

Coke.—The market situation in coke is unchanged. Consumers of metallurgical grades are reported to be drawing on their reserve stocks and are buying lightly. There is little business in domestic coke.

Finished Iron and Steel.—Fabricators of structural steel report that business is extremely dull, there being no municipal contracts in immediate prospect and no private building enterprises of consequence near the contract stage. The only sizable reinforcing bar project in sight is the St. Louis Civil Court House, revised specifications for which call for 350 tons, as against 500 to 600 tons in the original plans. Warehouse business is very light, the July volume being about on a par with that of June and slightly under that of July of last year.

Old Material.—Such items as miscellaneous standard-section rails, including frogs, switches and guards cut apart, and steel angle bars are up 50c. a ton, and the remainder of the old material list is also stronger. The market situation is due to purchases by large dealers to cover contracts and also for speculation and to the reluctance of the smaller dealers to sell at pres-

Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and structural shapes.....	3.25c.
Bars, soft steel or iron.....	3.15c.
Cold-finished rounds, shafting and screw stock	3.75c.
Black sheets (No. 24).....	4.80c.
Galvanized sheets (No. 24).....	5.35c.
Blue annealed sheets (No. 10).....	3.60c.
Black corrugated sheets.....	4.65c.
Galvanized corrugated sheets.....	5.30c.
Structural rivets	3.60c.
Boiler rivets	3.80c.
Per Cent Off List	
Tank rivets, 7/8-in. and smaller.....	70
Machine bolts	60
Carriage bolts	60
Lag screws	60
Hot-pressed nuts, square, blank or tapped...	60
Hot-pressed nuts, hexagons, blank or tapped. 60	

ent levels. Railroads are taking advantage of the competition among dealers and are issuing lists more frequently. Mills rolling reinforcing bars are buying virtually all the rerolling rails offered, as they are well booked with bar orders. Railroad lists include: Atchison, Topeka & Santa Fe, 6200 tons; St. Louis-San Francisco, 1000 tons; Chicago, Milwaukee & St. Paul, 700 tons; Kansas City Southern, 500 tons; Gulf Coast Lines, 400 tons; Great Northern, 65 carloads; Chicago & Eastern Illinois, 18 carloads; Mobile & Ohio, 10 carloads, and Pullman Co., St. Louis, five carloads.

Prices per gross ton f.o.b. dealers' yards and delivered St. Louis district consumers' works:

Heavy melting steel.....	\$11.25 to \$11.75
No. 1 locomotive tires.....	14.50 to 15.00
Heavy shoveling steel.....	11.25 to 11.75
Miscellaneous standard-section rails, including frogs, switches and guards, cut apart.....	14.00 to 14.50
Railroad springs	14.50 to 15.00
Bundled sheets	8.50 to 9.00
No. 2 railroad wrought.....	11.25 to 11.75
No. 1 busheling.....	10.00 to 10.50
Cast iron borings.....	9.00 to 9.50
Iron rails	14.00 to 14.50
Rails for rolling.....	14.00 to 14.50
Machine shop turnings.....	6.75 to 7.25
Steel car axles.....	18.50 to 19.00
Iron car axles.....	23.00 to 23.50
Wrought iron bars and transoms	18.50 to 19.00
No. 1 railroad wrought.....	12.00 to 12.50
Steel rails, less than 3 ft.....	15.50 to 16.00
Steel angle bars.....	12.50 to 13.00
Cast iron carwheels.....	13.50 to 14.00
No. 1 machinery cast.....	16.00 to 16.50
Railroad malleable	12.75 to 13.25
No. 1 railroad cast.....	15.00 to 15.50
Agricultural malleable	11.50 to 12.00
Relaying rails, 60 lb. and under...	20.50 to 23.50
Relaying rails, 70 lb. and over...	26.50 to 29.00

Buffalo

Sustained Buying of Pig Iron—New Packing List for Bolts

BUFFALO, Aug. 9.—There continues to be a buying movement in the pig iron market, although most current orders are being placed without putting out general inquiries. Some of the radiator companies are understood to have purchased 4000 to 5000 tons of foundry iron, and the American Radiator Co. is said to have placed the 2000 tons of malleable it sought with a Buffalo maker. A pending inquiry calls for 1000 tons of foundry, and another for 2000 tons of malleable. Prices are weaker, especially in competitive markets on the Eastern seaboard.

Prices per gross ton, f.o.b. furnace:

No. 2 plain fdy., sil. 1.75 to 2.25...	\$16.25 to \$16.75
No. 2X foundry, sil. 2.25 to 2.75...	16.75 to 17.25
No. 1X foundry, sil. 2.75 to 3.25...	17.75 to 18.25
Malleable, sil. up to 2.25.....	16.25 to 16.75
Basic	16.25 to 16.75
Lake Superior charcoal.....	27.28

Finished Iron and Steel.—The market in bars is inactive, with specifications only fair. Pipe specifications are holding up well, and pipe jobbers report some improvement in demand. Business in sheets is in fair volume. Black sheets are firm at 3c., base Pittsburgh, and galvanized at 3.85c. The reinforcing bar market is active. A local maker took 250 tons for a grocery warehouse and about 200 tons for an addition to the Eastman Kodak Co. plant at Rochester, N. Y. Figures are being asked for on a 200-ton job in Jamestown, N. Y.

Bolts and Nuts.—Generally speaking, specifications for bolts and nuts this month are considerably ahead of those in the same period in July. Orders from jobbers are showing a marked increase. Automobile manu-

Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and structural shapes.....	3.40c.
Soft steel bars.....	3.30c.
Reinforcing bars	2.75c.
Cold-finished flats, squares and hexagons.	4.45c.
Rounds	3.95c.
Cold rolled strip steel.....	5.85c.
Black sheets (No. 24).....	4.30c.
Galvanized sheets (No. 24).....	5.15c.
Blue annealed sheets (No. 10).....	3.80c.
Common wire nails, base per keg.....	\$3.65
Black wire, base per 100 lb.....	3.90

facturers are releasing more liberal specifications for their new models. The leading bolt producer in this district is operating at about 60 to 65 per cent of capacity. This producer within the next week will issue a new packing list covering carriage bolts, machine bolts and lag bolts, which will show smaller full container quantities on slower moving sizes of bolts and will also show a reduction in extras for less than full container quantities of nuts. The market is firm, and all specifications are being received on the basis of 70 per cent off.

Old Material.—The market is inactive. Rejections are numerous at one of the mills and another continues to hold up shipments, though this latter mill is accepting some tonnage via Lake boat from the West. Railroad lists that closed here last week resulted in nothing coming to local users or purchasers. One of the railroads received \$15.50 per gross ton at a Valley point for its heavy melting steel.

Prices per gross ton, f.o.b. Buffalo consumers' plants:

Basic Open-Hearth Grades	
No. 1 heavy melting steel.....	\$14.75 to \$15.00
No. 2 heavy melting steel.....	14.00 to 14.25
Scrap rails	14.50 to 15.00
Hydraulic compressed sheets....	12.75 to 13.25
Hand-bundled sheets	9.00 to 9.50
Drop forge flashings.....	11.50 to 12.00
No. 1 busheling.....	13.00 to 13.25
Heavy steel axle turnings.....	12.75 to 13.25
Machine shop turnings.....	9.50 to 10.00
Acid Open-Hearth Grades	
Railroad knuckles and couplers..	15.75 to 16.25
Railroad coil and leaf springs...	15.00 to 15.75
Roller steel wheels.....	15.75 to 16.25
Low phosphorus billet and bloom ends	17.00 to 17.50
Electric Furnace Grades	
Heavy steel axle turnings.....	12.75 to 13.25
Short shovelling steel turnings...	10.75 to 11.00
Blast Furnace Grades	
Short shovelling steel turnings...	10.75 to 11.00
Short mixed borings and turnings	10.00 to 10.50
Cast iron borings.....	10.75 to 11.00
No. 2 busheling.....	10.00 to 10.50
Rolling Mill Grades	
Steel car axles.....	15.00 to 16.00
No. 1 railroad wrought.....	13.00 to 13.50
Cupola Grades	
No. 1 machinery cast.....	14.75 to 15.25
Stove plate	13.00 to 13.50
Locomotive grate bars.....	11.00 to 11.50
Steel rails, 3 ft. and under.....	16.50 to 17.00
Cast iron carwheels.....	14.00 to 14.50
Malleable Grades	
Railroad	15.00 to 15.50
Agricultural	15.00 to 15.50
Industrial	15.00 to 15.50

Cincinnati

More Inquiries for Pig Iron—Good Steel Demand from Southern Jobbers

CINCINNATI, Aug. 9.—A slightly better undertone is discernible in the pig iron market, even though sales in the past week have amounted to only about 3500 tons. The number of inquiries before the trade has increased, and many buyers are covering their requirements for the remainder of the third quarter. Only a few melters, however, are interested in purchasing sufficient tonnage to carry them through the last half of the year. Foundries in this territory have small stocks on hand and are depending upon frequent deliveries by producers to supply their current needs. The price situation is unchanged. Southern Ohio foundry iron is selling at \$18.50 to \$19, base Ironton, while Lake Erie producers are reported to be taking business at \$17 to \$17.50, base furnace. In Southern iron there is more activity, and quotations are firm at \$17.25, base Birmingham. Tennessee iron remains at \$18, base Birmingham. The silvery iron market is more active, one sale of 500 tons having been made to a Michigan company. Among the orders booked by local dealers in the past week were 700 tons of Alabama iron for a local foundry, 500 tons of foundry for a southern Ohio melter and 600 tons of foundry. Pending inquiries include 1000 tons of malleable for a Michigan consumer, 700 tons of Southern for a Louisville company and 500 tons, divided among silvery, Southern and Northern foundry irons, for a central Indiana company. The Belfont Steel & Wire Co., at Ironton, Ohio, will blow in its Belfont furnace as soon as necessary repairs of the furnace lining can be made.

Prices per gross ton, delivered Cincinnati:

So. Ohio fdy., sil. 1.75 to 2.25...	\$20.39 to \$20.89
So. Ohio malleable.....	20.14 to 20.89
Alabama fdy., sil. 1.75 to 2.25...	20.94
Alabama fdy., sil. 2.25 to 2.75...	21.44
Tennessee fdy., sil. 1.75 to 2.25...	21.69
Southern Ohio silvery, 8 per cent	30.39

Freight rates: \$1.89 from Ironton and Jackson, Ohio; \$3.69 from Birmingham.

Finished Material.—A slight improvement in orders and specifications is reported by a number of steel companies, the total volume running somewhat ahead of the July average. While the betterment is not sufficiently pronounced to indicate that summer quietness is at an end, the outlook is encouraging and it is believed that a definite upward turn in sales will take place within the next two weeks. Mills have gained satisfaction from the fact that prices have held well in the usual period of light buying during July and early August, and producers are of the opinion that they are in a position to maintain a fairly strong market through the fall season. The jobbing trade, particularly in the South, has been one of the main sources of recent business, and in some cases the third quarter tonnage which is being taken out on contracts is much larger than anticipated. In the wire goods market sales have been light, but the price situation is the best in many weeks. Common wire nails are quoted at \$2.69 per keg, delivered in Cincinnati, which is equivalent to \$2.55 at Ironton plus a 14c. barge rate. Some sellers, however, are refusing to book orders at less than \$2.75. The nail and wire mill of the Belfont Steel & Wire Co. resumed operations this week. Bars, shapes and plates are moving at a fair rate at 1.80c., base Pittsburgh. Sheet mills report that production is being maintained at about 80 per cent of capacity, and that sales have increased. The number of requests for rush shipment of material is regarded as an indication of greater activity in consuming industries. The demand for cold-rolled bars has been only fair.

Reinforcing Bars.—The Pollak Steel Co. will supply 100 tons of bars for a new building for the St. Francis School for Girls, Cincinnati. New billet bars are firm at 1.80c., base Pittsburgh, and rail steel stock is bringing 1.70c. to 1.75c., base mill.

Coke.—The coke market is still rather listless, although signs of improvement are growing. By-product foundry coke specifications are in about the same volume as in July. The shutting down of two blast furnaces in the Ironton district has necessitated the curtailment of by-product coke production at that point, and indications are that operations will not be accelerated in the near future. A local company has contracted for 6000 tons of Wise County furnace coke for delivery during the next 12 months. Prices are firm.

Foundry coke prices per net ton, delivered Cincinnati: By-products coke, \$9.52 to \$9.64; Wise County coke, \$7.59 to \$8.09; New River coke, \$10.09 to \$10.59. Freight rates: \$2.14 from Ashland, Ky.; \$2.59 from Wise County and New River ovens.

Warehouse Business.—There has been an appreciable increase in business, sales in the past week having been the largest in several months. The improvement is reflected principally in bars, plates and sheets. Prices on all commodities are steady and unchanged.

Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes....	3.40c.
Bars, soft steel or iron.....	3.30c.
Reinforcing bars	3.30c.
Hoops	4.00c. to 4.25c.
Bands	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares	4.35c.
Open-hearth spring steel.....	4.75c. to 5.00c.
Black sheets (No. 24).....	4.05c.
Galvanized sheets (No. 24).....	4.90c.
Blue annealed sheets (No. 10)...	3.60c.
Structural rivets	3.85c.
Small rivets .....	.65 per cent off list
No. 9 annealed wire, per 100 lb.....	\$3.00
Common wire nails, base per keg.....	2.95
Cement coated nails, base 100 lb. keg.....	2.95
Chain, per 100 lb.....	7.55
Net per 100 Ft.	
Lap-welded steel boiler tubes, 2-in.	\$18.00
4-in.	38.00
Seamless steel boiler tubes, 2-in.	19.00
4-in.	39.00

Despite recent reductions in mill quotations, local jobbers are not likely to make any revision in prices, because the cost of giving service to customers has risen so sharply as to prevent such action.

Old Material.—Buying of scrap by dealers continues to constitute the major part of the activities in the local market. Consumers are taking limited tonnages on contract, but are not purchasing material for forward delivery. They prefer instead to see to what extent fall business will develop before buying against future needs. Prices are steady and unchanged.

Dealers' buying prices per gross ton f.o.b. cars, Cincinnati:

Heavy melting steel.....	\$12.00 to \$12.50
Scrap rails for melting.....	13.00 to 13.50
Loose sheet clippings.....	9.00 to 9.50
Champion bundled sheets.....	9.50 to 10.00
Cast iron borings.....	8.75 to 9.25
Machine shop turnings.....	7.50 to 8.00
No. 1 busheling.....	10.00 to 10.50
No. 2 busheling.....	7.50 to 8.00
Rails for rolling.....	13.50 to 14.00
No. 1 locomotive tires.....	14.25 to 14.75
No. 1 railroad wrought.....	12.00 to 12.50
Short rails.....	17.50 to 18.00
Cast iron carwheels.....	13.25 to 13.75
No. 1 machinery cast.....	17.50 to 18.50
No. 1 railroad cast.....	14.50 to 15.00
Burnt cast.....	8.50 to 9.00
Stove plate.....	10.00 to 10.50
Brake shoes.....	10.25 to 11.00
Railroad malleable.....	12.50 to 13.00
Agricultural malleable.....	12.00 to 12.50

Birmingham

Pig Iron Weak in Slow Market—Cast Pipe Undergoes Further Decline

BIRMINGHAM, Aug. 9.—Pig iron is weak in an exceedingly slow market, and while there has been little business to test prices and no general reductions have been made, as low as \$16.75, Birmingham, has been done on No. 2 foundry grade. The sluggish condition of the market is accounted for by the slack operations in consuming industries, notably among makers of cast iron pipe. The recent reductions in pipe prices have failed to stimulate sales, with the consequence that pipe producers are confining their purchases of pig iron to the barest current needs. Despite the recent decline in demand, pig iron production in Alabama in the first seven months of this year was less than 13,000 tons short of output in the same period of 1926.

Prices per gross ton, f.o.b. Birmingham district furnaces:

No. 2 foundry, 1.75 to 2.25 sil.....	\$17.25
No. 1 foundry, 2.25 to 2.75 sil.....	17.75
Basic.....	17.25
Charcoal, warm blast.....	29.00

Rolled Steel.—Operations at the Ensley works of the Tennessee Coal, Iron & Railroad Co., which were suspended for the installation of a new blooming mill engine, will be resumed next week. The rail mill will be among those departments that will get into production again. Rail tonnage has been booked recently, and the railroads, which so far have bought only for delivery during the remainder of this year, are beginning to consider their 1928 requirements. The production of cotton ties is now at its height in this district, and shipments are going forward in good volume. Mill prices on finished steel are unchanged.

Cast Iron Pipe.—Open quotations on pressure pipe have receded to \$31, Birmingham, for 6-in. and larger diameters, and sales at even lower prices have been reported. So far the reductions in prices have failed to stimulate demand. Production is being curtailed in keeping with reduced bookings.

Coke.—In view of improved inquiry for coke, independent ovens in this district are no longer curtailing their output. Coal contracts are being closed as a result of the strike in the bituminous coal mines of the Central West, and for the same reason Alabama coke producers expect to book considerable business. By-product foundry coke prices are unchanged at \$5.50 per net ton, Birmingham, while beehive coke is commanding \$6.

Old Material.—The market has remained at a standstill for several weeks, but the resumption of several open-hearth furnaces next week may mean a revival

of interest in heavy melting steel. There is an ample supply of scrap, and dealers and consumers alike are able to buy at virtually their own prices.

Prices per gross ton, delivered Birmingham district consumers' yards:

Heavy melting steel.....	\$10.50 to \$11.00
Scrap steel rails.....	12.50 to 13.00
Short shoveling turnings.....	8.50 to 9.00
Cast iron borings.....	8.50 to 9.00
Stove plate.....	13.00 to 14.00
Steel axles.....	16.00 to 17.00
Iron axles.....	16.00 to 17.00
No. 1 railroad wrought.....	11.00 to 12.00
Rails for rolling.....	13.00 to 14.00
No. 1 cast.....	14.00 to 15.00
Tramcar wheels.....	12.50 to 13.50
Cast iron carwheels.....	12.00 to 13.00
Cast iron borings, chemical.....	13.00 to 13.50

Boston

Sales of Pig Iron Total 25,000 Tons—Scrap Grades Advance

BOSTON, Aug. 9.—Approximately 25,000 tons of pig iron was sold in the past week in New England, practically all of it for fourth quarter delivery. Sales included 15,000 tons of 1.75 per cent silicon iron to a large Massachusetts melter; 1000 tons of No. 2X to a Vermont foundry, and three or four 500-ton lots of No. 2X, in addition to smaller tonnages. The 15,000-ton lot was split four ways, two eastern New York State, a Buffalo and the Mystic furnaces participating. The company paid not more than \$20.25 a ton, delivered, or the equivalent, with a \$4.50 freight rate of \$15.75. Buffalo. One eastern New York State furnace made a price of \$20 a ton, delivered, or \$17.61, furnace. This buyer is not so discriminating regarding phosphorus as some foundries, and because of this fact and the low silicon content specified, prices paid are hardly a criterion of average going prices. Certain it is, however, that prices are weak and that less attention is being paid silicon differentials even on small lots. No. 2X and No. 1X are being offered freely at \$16.50 a ton, Buffalo, and a company about to blow in a furnace is reported to have offered iron for less to build up a backlog. Furnaces east of Buffalo are meeting Buffalo competition and are going even lower when necessity requires, depending largely on the freight rate.

Prices of foundry iron per gross ton, delivered to most New England points:

Buffalo, sil. 1.75 to 2.25.....	\$20.91 to \$21.41
Buffalo, sil. 2.25 to 2.75.....	21.41 to 21.91
East. Penn., sil. 1.75 to 2.25.....	23.15 to 23.65
East. Penn., sil. 2.25 to 2.75.....	23.65 to 24.15
Virginia, sil. 1.75 to 2.25.....	26.92
Virginia, sil. 2.25 to 2.75.....	27.42
Alabama, sil. 1.75 to 2.25.....	24.16 to 26.02
Alabama, sil. 2.25 to 2.75.....	24.66 to 26.52

Freight rates: \$4.91 from Buffalo, \$3.65 from eastern Pennsylvania, \$5.92 from Virginia, \$6.91 to \$8.77 from Alabama.

Plates and Shapes.—Most of the business booked in the past week by fabricators involved lots of less than 100 tons of steel. The Massachusetts General Hospital

Warehouse Prices, f.o.b. Boston

	Base per Lb.
Plates.....	3.365c.
Structural shapes—	
Angles and beams.....	3.365c.
Tees.....	3.365c.
Zees.....	3.465c.
Soft steel bars and small shapes.....	3.265c.
Flats, hot-rolled.....	4.15c.
Reinforcing bars.....	3.265c. to 3.54c.
Iron bars—	
Refined.....	3.265c.
Best refined.....	4.60c.
Norway, rounds.....	6.60c.
Norway, squares and flats.....	7.10c.
Spring steel—	
Open-hearth.....	5.00c. to 10.00c.
Crucible.....	12.00c.
Tire steel.....	4.50c. to 4.75c.
Bands.....	4.015c. to 5.00c.
Hoop steel.....	5.50c. to 6.00c.
Cold rolled steel—	
Rounds and hexagons.....	4.05c.
Squares and flats.....	4.55c.
Toe calk steel.....	6.00c.

job, calling for 780 tons, will be refigured. Two or three other good-sized jobs are pending and in the making. Mills are holding to prices previously established, with plates bringing 1.75c. to 1.80c. per lb., base Pittsburgh; shapes, 1.70c., and bars, 1.75c.

Coke.—Shipments of New England by-product foundry coke continue to gather momentum, although the weekly increase is comparatively small. The New England Coal & Coke Co. and the Providence Gas Co. are billing out such fuel at \$12 a ton, delivered, within a \$3.10 freight rate zone. Good Connellsville district foundry coke for spot shipment is available at \$4.75 a ton on cars, ovens, or \$10.09, delivered, but there are few takers.

Imports.—During July, 1979 tons of foreign pig iron was received at this port, contrasted with 1848 tons in June, this year, and 2423 tons in July, last year. Imports last month consisted of 777 tons of Dutch iron, 500 tons of English and 702 tons of Indian. The Mystic Iron Works in July imported 30,852 tons of ore, consisting of 16,627 tons from Newfoundland, 5725 tons from Tunis and 8500 tons from Algeria. In June, this year, the company received 8300 tons of ore, and in July, last year, 22,587 tons.

Old Material.—While a more optimistic feeling prevails in the old material market, the volume of business does not increase. Now that prices are firmer, scrap makers and dealers are inclined to hold material for a higher market; consequently it is more difficult to buy scrap. Heavy melting steel is selling in a small way at \$9.50 to \$9.75 a ton on cars, shipping point, with an occasional sale at \$10, an advance of 25c. to 50c. a ton. Machine shop turnings are up as much, with a majority of sales at \$6 or \$6.25. At \$6.50 to \$7 a ton on cars, forged flashings are 50c. a ton higher. Shafting is difficult to sell even at price concessions, and the spread in quotations for such material and for street car axles is exceptionally wide.

Buying prices per gross ton f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.....	\$9.50 to \$10.00
Scrap rails	8.00 to 8.50
No. 1 railroad wrought.....	10.50 to 11.00
No. 1 yard wrought.....	8.50 to 9.00
Machine shop turnings.....	6.00 to 6.25
Cast iron borings (steel works and rolling mill).....	5.50 to 6.00
Bundled skeleton, long.....	6.00 to 6.50
Forged flashings	6.50 to 7.00
Blast furnace borings and turnings	5.50 to 6.00
Forged scrap	6.00 to 6.50
Shafting	13.00 to 13.50
Street car axles.....	15.50 to 16.00
Wrought pipe (1 in. in diameter, over 2 ft. long).....	7.00 to 7.50
Rails for rerolling.....	10.00 to 10.50
Cast iron borings, chemical.....	10.00 to 10.50

Prices per gross ton delivered consumers' yards:

Textile cast	\$15.00 to \$15.50
No. 1 machinery cast.....	14.50 to 15.00
No. 2 machinery cast.....	12.50 to 13.00
Stove plate	11.00 to 12.00
Railroad malleable	14.50 to 15.00

Youngstown

Slow Demand for Pipe and Sheets—Little Consumer Interest in Scrap

YOUNGSTOWN, Aug. 9.—As the greater part of the steel production of this district goes into pipe and sheets and neither product is in active demand at present, it is not to be wondered at that ingot output of the district is not running more than 60 per cent of capacity and that manufacturers as a rule are complaining of slow times. Pipe manufacturers report a steady but moderate demand for butt-welded pipe, since jobbers, taking full advantage of the fact that there is ample productive capacity and mill stocks are of sufficient size to insure very prompt deliveries, are not carrying as large stocks as formerly. Local mills are still working on line pipe orders, and one of them is now shipping approximately 4000 tons for a line for the Western Gas & Fuel Co. to run from San Angelo, Tex., through Silver City and Miles to Rawens and its environs. Lap-welded pipe for oil wells is very dull, and there is not much expectation locally that there will be much improvement during the remainder of this year, despite the announcement that operators in the Seminole, Okla.,

field had decided upon a 10 per cent curtailment of output in an effort to correct the supply situation. It is believed that an even greater reduction could be made without entirely closing the gap between output and consumption.

Sheet business is steady enough, but buyers are taking only their barest requirements, possibly in the thought that by holding down their orders they will make some manufacturers anxious enough for business to shade prices. The effort, however, has been unsuccessful, and the market cannot be described as other than firm at 3c. per lb., base Pittsburgh, for black; 3.85c., base, for galvanized; 2.25c., base, for blue annealed, and 4.25c., base, for automobile body sheets. Business in the latter grade lately has been fairly active, but real activity in this product and in strips seems to await heavier production schedules among the motor car builders. In that connection, interest naturally centers about the Ford Motor Co. and the reception that will be accorded its new model. Some steel men conversant with the automobile industry express the opinion that the company waited as much as two years too long before changing its model and that its competitors now are in a position to meet the effort of the Ford company to regain its former place in the low-priced car field. The Chevrolet Motor Car Co., it is reported here, has a new car, powered by a six-cylinder motor, to sell at approximately the same prices as its present four-cylinder models, which will reach the market at approximately the same time as the new Ford.

Local mills are encountering some rather low prices on line pipe in the Southwest and also find that even on single carloads of steel bars it is difficult to obtain more than 1.80c., base Pittsburgh, but on sheets and strips the price situation is firm, and on plate business in the natural territory of Youngstown mills it has not been necessary to go under 1.80c., base Pittsburgh, on the general run of orders.

Dealers here as elsewhere are more active in the scrap market than are the mills. The latter appear to have stocks sufficient to carry them over the next 60 days, and even longer in the event there is no material betterment in the demand for finished steel, and are showing little interest in the market. On heavy melting steel, \$15.50 appears to have been as high as any of the Mahoning and Shenango mills have paid, but dealers have gone higher to cover short sales and are asking from \$16 to \$16.50, supporting such demands on the grounds that recent sales of railroad scrap were at \$16.30 to \$16.40. Compressed sheet scrap has sold at \$14.75 and \$15, with dealers now asking \$15.50. The shortage of scrap in eastern Ohio growing out of the diversion of supplies from Detroit by water to Cleveland and Buffalo is regarded here as merely temporary. As soon as consumers in those districts get a supply, it is believed that the movement toward Massillon, Canton and Youngstown will again increase.

Of the 29 steel works blast furnaces in this district, 16 are making iron, while four of the 11 merchant stacks are producing, the furnace of the Shenango Furnace Co., Sharpsville, Pa., being banked.

Advances in Scrap at Detroit—Pig Iron Shipments Gain

DETROIT, Aug. 9.—With several of the mills in Ohio covering their requirements in scrap, the market has registered an advance during the past week of 50c. per ton on borings and short turnings and 25c. per ton on long turnings. Pig iron shipments in the district during the present month promise to be a little heavier than during July, with an anticipated increase toward the latter part of the month which should carry into September.

Dealers' buying prices per gross ton f.o.b. cars, Detroit:

Heavy melting and shoveling steel	\$12.50 to \$13.00
Borings and short turnings.....	9.00 to 9.50
Long turnings	8.00 to 8.50
No. 1 machinery cast.....	17.00 to 18.00
Automobile cast	18.50 to 19.50
Hydraulic compressed sheets.....	11.25 to 11.75
Stove plate	11.50 to 12.50
No. 1 busheling.....	10.50 to 11.00
Sheet clippings	7.75 to 8.25
Flashings	10.50 to 11.00

NON-FERROUS METAL MARKETS

The Week's Prices		Aug. 9	Aug. 8	Aug. 6	Aug. 5	Aug. 4	Aug. 3
	Lake copper, N. Y.	13.50	13.50	13.50	13.50	13.50	13.50
	Electrolytic copper, N. Y.*..	13.12½	13.12½	13.12½	13.12½	13.12½	13.12½
	Straits tin, spot, N. Y.	65.12½	65.12½	...	65.50	65.25	65.25
	Lead, New York.....	6.80	6.80	6.80	6.80	6.80	6.75
	Lead, St. Louis.....	6.52½	6.52½	6.52½	6.52½	6.52½	6.45
	Zinc, New York.....	6.67½	6.70	6.72½	6.75	6.75	6.77½
	Zinc, St. Louis.....	6.32½	6.35	6.37½	6.40	6.40	6.42½

Cents per Pound
for
Early Delivery

*Refinery quotation; delivered price ¼c. higher.

NEW YORK, Aug. 9.—A general decline in prices of most metals in the London market yesterday, due largely to liquidation, has had at least a sentimental effect in the markets here. American prices have not declined perceptibly, but there has been some halt in activity. Copper prices are still fairly firm but buying is very light. The tin market continues quite active, and prices are still firm. London lead prices had the largest decline, but American prices remain unchanged today. Zinc has fallen slightly, with buyers trying to get lower prices.

Copper.—Consumers are not as active as they were, but producers still adhere to the prevailing quotation for electrolytic copper of 13.37½c., delivered in the Connecticut Valley. There are attempts to purchase below this price, but so far as can be determined, they have been unsuccessful thus far. Because the recent advance is regarded by many consumers as too rapid, they are waiting for a possible break in the market, though it is generally stated that they are not covered for their needs very far ahead. The report that a large telegraph company purchased 3,000,000 lb. of metal is erroneous in that the company referred to did purchase that quantity of wire. Copper Exporters, Inc., again advanced their official quotation, effective last Wednesday, Aug. 3, from 13.50c. to 13.65c., c.i.f. Hamburg, this being the second advance in two successive days. Possibly as a result of this, buying for export fell off almost completely and this market is exceedingly quiet. Lake copper is quoted at 13.50c., delivered.

Tin.—Sales of tin for the week ended Saturday, Aug. 6, were about 1400 tons, with dealers the principal buyers, consumers having bought quite heavily previously. For most of the week they were looking on. It is stated that their requirements for August-September and most of October are well covered with their November position quite comfortable. There has been considerable dealing in November-December delivery. Yesterday, Monday, the market was quite active, with 400 to 500 tons changing hands, and in this movement consumers took the larger proportion. Today the market has been less active, with spot Straits tin quoted at 65.12½c., New York, about 200 tons changing hands. London prices today were lower than yesterday and than a week ago, as stated above, with spot standard quoted at £296 5s., future standard at £288 10s. and spot Straits at £301 15s. The Singapore price today was £295 5s. Arrivals thus far this month have been 2286 tons, with 6163 tons reported afloat.

Lead.—The American Smelting & Refining Co. again advanced its official quotation on Aug. 3 from 6.60c. to 6.75c., New York. The market is quiet, with August needs well covered and some buying for September already recorded. The feature of the market has been the sharp drop in London yesterday, spot delivery having declined 16s. 3d. and futures 17s. 6d. per ton, with a recovery today of only 2s. 6d. There was also a heavy decline last Friday at London, amounting to 8s. 9d. for spot delivery and 6s. 3d. for futures. Thus the decline in the last few days for spot metal has approximated 24s. per ton. What effect this may have on the American market remains to be seen. In the outside market prices today are 6.80c., New York, or 6.50c. to 6.55c., St. Louis.

Zinc.—In the past week the market for prime western zinc has been quite inactive, although today inquiry is more plentiful. Consumers are attempting to get

Metals from New York Warehouse

Delivered Prices Per Lb.

Tin, Straits pig.....	67.00c. to 68.00c.
Tin, bar	69.00c. to 70.00c.
Copper, Lake	14.75c.
Copper, electrolytic	14.50c.
Copper, casting	14.00c.
Zinc, slab	7.75c. to 8.75c.
Lead, American pig.....	8.00c. to 9.00c.
Lead, bar	10.00c. to 11.00c.
Antimony, Asiatic	14.00c. to 15.00c.
Aluminum No. 1 ingot for remelting (guaranteed over 99 per cent pure) ..	27.00c. to 28.00c.
Aluminum ingots, No. 12 alloy ..	26.00c. to 27.00c.
Babbitt metal, commercial grade ..	30.00c. to 40.00c.
Solder, ½ and ½	42.00c. to 43.00c.

Metals from Cleveland Warehouse

Delivered Prices Per Lb.

Tin, Straits pig.....	69.25c.
Tin, bar	72.25c.
Copper, Lake	14.00c.
Copper, electrolytic	14.00c.
Copper, casting	13.25c.
Zinc, slab	7.75c.
Lead, American pig.....	7.75c.
Antimony, Asiatic	18.00c.
Lead, bar	9.50c.
Babbitt metal, medium grade.....	21.75c.
Babbitt metal, high grade.....	75.50c.
Solder, ½ and ½	40.00c.

Rolled Metals from New York or Cleveland Warehouse

Delivered Prices, Base Per Lb.

Sheets—	
High brass	18.25c. to 19.00c.
Copper, hot rolled.....	22.00c. to 23.00c.
Copper, cold rolled, 14 oz. and heavier, ..	24.25c. to 25.25c.
Seamless Tubes—	
Brass	23.12½c. to 24.12½c.
Copper	24.00c. to 25.00c.
Brazed Brass Tubes.....	26.25c. to 27.25c.
Brass Rods	16.00c. to 17.00c.

From New York Warehouse

Delivered Prices, Base Per Lb.

Zinc sheets (No. 9), casks.....	10.50c. to 11.00c.
Zinc sheets, open.....	11.00c. to 11.25c.

Non-Ferrous Rolled Products

Mill prices on bronze, brass and copper prices were advanced ¼c. on Aug. 3. Eastern mills have raised the price of zinc sheets to 10c., following the lead of makers in the West, as noted last week. Lead full sheets are unchanged at the advance of July 30.

List Prices, Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight up to
75c. per 100 Lb. Allowed on Shipments
of 500 Lb. or Over

Sheets—	
High brass	18.25c.
Copper, hot rolled.....	22.00c.
Zinc	10.00c.
Lead (full sheets).....	10.25c. to 10.50c.
Seamless Tubes—	
High brass	23.12½c.
Copper	24.00c.
Rods—	
High brass	16.00c.
Naval brass	18.75c.
Wire—	
Copper	15.25c.
High brass	18.75c.
Copper in Rolls.....	21.00c.
Brazed Brass Tubing.....	26.25c.

Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of the Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide.....	35.50c.
Tubes, base	45.00c.
Machine rods	34.00c.

Rolled Metals, f.o.b. Chicago Warehouse

(Prices Cover Trucking to Customers' Doors in City Limits)

Sheets—		Base per Lb.
High brass	.....	19.25c.
Copper, hot rolled	.....	22.00c.
Copper, cold rolled, 14 oz. and heavier	.....	24.25c.
Zinc	.....	11.00c.
Lead, wide	.....	10.25c.
Seamless Tubes—		
Brass	.....	24.62½c.
Copper	.....	25.50c.
Brazed Brass Tubes	.....	28.50c.
Brass Rods	.....	16.00c.

lower prices and producers have made some concessions in that the market today by some sellers is quoted at 6.32½c., St. Louis, which is the prevailing quotation, though others are still asking 6.35c. At the peak of the movement in the middle of last week the metal sold as high as 6.42½c. and 6.45c., St. Louis.

Antimony.—There is some buying but the market is generally quiet, with Chinese metal for spot delivery quoted at 12c., New York, with futures at 12.25c., duty paid.

Nickel.—Ingot nickel in wholesale lots is quoted at 35c., with shot nickel at 36c. and electrolytic nickel at 39c. per lb.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 26c. per lb., delivered.

Non-Ferrous Metals at Chicago

AUG. 9.—Sales are active and quotations on Lake copper, tin, lead and zinc are higher. The old metal market is quiet and prices are leaning to the weak side.

Prices, per lb., in carload lots: Lake copper, 13.50c.; tin, 67c.; lead, 6.70c.; zinc, 6.55c.; in less-than-carload lots, antimony, 14c. On old metals we quote copper wire, crucible shapes and copper clips, 10c.; copper bottoms, 9c.; red brass, 9c.; yellow brass, 6.75c.; lead pipe, 5c.; zinc, 3.50c.; pewter, No. 1, 34c.; tin foil, 43.50c.; block tin, 52c.; aluminum, 13.25c.; all being dealers' prices for less-than-carload lots.

RAILROAD EQUIPMENT

Illinois Traction System Buys 200 Gondola Cars—300 Mine Cars Purchased

Purchases of 200 gondola cars and 50 gondola bodies, 625 steel underframes and 300 mine cars were the feature of the market in the last week. Included in the new inquiries are 100 gondolas and 100 goods wagons for an Egyptian and a South American road, respectively. A Western carrier is in the market for 8000 tons of steel for building underframes in its own shops. Details of the week's business follow:

The Illinois Traction System has ordered 200 composite drop-bottom gondola cars of 50-ton capacity and 50 composite drop-bottom gondola car bodies of 50-ton capacity from the American Car & Foundry Co.

The Koppel Industrial Car & Equipment Co. has sold five 30-yd. air-dump cars to the Reading Co. and three to the Wagner Quarries Co.

The Egyptian State Railways have taken bids on 100 gondola cars. Some American companies put in bids, but it is expected that the order will be placed in England.

The Cordoba Central Railway, a South American road, has inquired here for 100 goods wagons.

The Great Northern is in the market for 8000 tons of steel for underframes to be built in its own shops.

The Chesapeake & Ohio has ordered three mail-baggage cars from the Pullman Car & Mfg. Corporation.

The Penn Coal Co. has placed 100 mine cars with the Pressed Steel Car Co.

The South Penn Colliery Co. has ordered 200 mine cars from the American Car & Foundry Co.

The Fruit Growers Express has bought 625 underframes from the Ryan Car Co.

The Southern Pacific is in the market for six baggage and mail cars.

The Arkansas Power & Light Co. will buy one 40-ton and one 50-ton flat car.

Old Metals, Per Lb., New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators and the selling prices are those charged consumers after the metal has been properly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible	11.25c.	13.00c.
Copper, heavy and wire	11.00c.	12.00c.
Copper, light and bottoms	9.50c.	10.50c.
Brass, heavy	7.00c.	8.50c.
Brass, light	5.50c.	7.25c.
Heavy machine composition	8.75c.	10.125c.
No. 1 yellow brass turnings	7.75c.	8.375c.
No. 1 red brass or composition turnings	8.00c.	9.00c.
Lead, heavy	5.50c.	6.00c.
Lead, tea	4.50c.	5.00c.
Zinc	4.00c.	4.25c.
Sheet aluminum	13.50c.	15.50c.
Cast aluminum	13.50c.	15.50c.

REINFORCING STEEL

New York Warehouse Takes 2000 Tons—Pending Work at Low Level

Included in the 5360 tons of concrete reinforcing steel reported bought in the last week was 2000 tons for a warehouse in Long Island City, N. Y. New work up for bids amounted to only 3300 tons, the largest single job being a flood control dam at Los Angeles, requiring 1200 tons. Awards follow:

BOSTON, 350 tons, Dorchester Bay bridge, to Bancroft & Martin Rolling Mill Co., Portland, Me.

CAMBRIDGE, MASS., 100 tons, Massachusetts Institute of Technology infirmary, to Edwin A. Tucker Co., Boston.

PROVIDENCE, 150 tons, Belcher & Loomis Hardware Co. warehouse, to Tolman Steel Co.

NEW YORK, 100 tons, warehouse for Atlantic Warehouses, Inc., Decatur Street, Queens, to Jones & Laughlin Steel Corporation.

LONG ISLAND CITY, N. Y., 2000 tons, Bloomingdale warehouse, to Jones & Laughlin Steel Corporation.

FAR ROCKAWAY, N. Y., 400 tons, boardwalk; reported let from Muccini & Beckert, general contractors, to National Bridge Works.

BUFFALO, 250 tons, Loblaw Groceries warehouse, to an unnamed Buffalo maker.

ROCHESTER, N. Y., 200 tons, addition to Eastman Kodak Co. plant, to an unnamed Buffalo maker.

CINCINNATI, 100 tons, St. Francis' School for Girls, to Pollak Steel Co.

CHICAGO, 172 tons, Clara Barton public school, to Concrete Engineering Co.

CHICAGO, 100 tons, apartment building at Fifty-first and Dorchester, to Concrete Engineering Co.

WAUWATOSA, WIS., 135 tons, steam tunnel, to Concrete Engineering Co.

SEATTLE, WASH., 400 tons, barracks at Camp Lewis, to Pacific Coast Steel Co.

SEATTLE, 300 tons, theater, Eighth and Olive Streets, to Northwest Steel Rolling Mills, Inc., Seattle.

SEATTLE, 350 tons, apartment building, to Northwest Steel Rolling Mills, Inc.

SEATTLE, 125 tons, Admiral Way bridge, to Pacific Coast Steel Co.

SEATTLE, 125 tons, Stratford Apartments, to Northwest Steel Rolling Mills, Inc.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

NEW YORK, 450 tons, publishing building on West Fifty-second Street.

PHILADELPHIA, 600 tons, loft building at Thirteenth and Race Streets.

JAMESTOWN, N. Y., 200 tons, Y. W. C. A. Hospital; bids asked.

CHICAGO, 500 tons, Milliners' Building. Dilks Construction Co., general contractor.

CHICAGO, tonnage not stated, Chicago Evening Post Building. McLennan Construction Co., general contractor.

CHICAGO, tonnage being estimated, building for DePaul University. McLennan Construction Co., general contractor.

ST. LOUIS, 350 tons, Civil Court House, revised specifications.

LOS ANGELES, 1200 tons, San Gabriel dam for the Los Angeles County Flood Control District; all bids rejected and plans are being revised.

FABRICATED STRUCTURAL STEEL

Awards of Nearly 39,000 Tons—Inquiries Less Than 19,000 Tons

Miscellaneous projects in New York accounted for more than 11,000 tons of the 38,900 tons of structural steel for which contracts were let in the last week. The largest single awards were 4000 tons for a steel mill addition at Middletown, Ohio; 3500 tons for an office building in New York, and 3000 tons for a hotel in Baltimore. New work pending aggregated less than 19,000 tons with no jobs of large size. Awards follow:

BOSTON, 260 tons, assembly hall for John Hancock Insurance Co., to Palmer Steel Co.

BOSTON, 400 tons, Transit Commission work, to Bethlehem Steel Co.

WALTHAM, MASS., 125 tons, theater, to Palmer Steel Co.

BOSTON & MAINE RAILROAD, 250 tons, three bridges, 190 tons to Phoenix Bridge Co. and 60 tons to Fort Pitt Bridge Co.

LEDYARD, CONN., 325 tons, highway bridge, to American Bridge Co.

NEW YORK, 11,320 tons in the following awards as reported to the Structural Steel Board of Trade: Apartment hotel at 238 West Seventy-third Street and apartment buildings at 418 and 451 East Fifty-seventh Street, to Paterson Bridge Co.; pier shed at 139th Street and Harlem River and generator power house at Yonkers for New York Central Railroad, to F. E. O'Rourke & Co., Inc.; telephone building at 228 East Fifty-sixth Street, business building at Eighth Avenue and Thirty-ninth Street, 9-story hotel at 1155 East Jersey Street, Jersey City, addition to office building for Newark *Evening News*, Newark, previously reported to Calumet Iron Works, to Hay Foundry & Iron Works; nurses' school at 141st Street and Southern Boulevard, laundry building at 311 East Ninety-fourth Street and community house at 264 West Eighty-ninth Street, to Levering & Garrigues Co.; apartment building at 330 West Seventy-second Street, to Lehigh Structural Steel Co.; apartment building at 22-66 Monroe Place, Brooklyn, to Taylor-Fichter Steel Construction Co.; 3 buildings for Grasselli Dyestuff Corporation at Grasselli, N. J., office and loft building at 151 West Forty-sixth Street, addition to Plaza Hotel at Jersey City, Martin Building at Elizabeth, N. J., column cores for Mergenthaler Linotype Co. building, Brooklyn, Dillon residence at Fox Hills, N. J., high school at Tuckahoe, N. Y., and elementary school at Glen Cove, N. Y., to McClintic-Marshall Co.

NEW YORK, 3500 tons, New York Telephone Co. building on 175th Street, to Hay Foundry & Iron Works.

NEW YORK, 1850 tons, Temple Emanu-El at Fifth Avenue and Sixty-fifth Street, to A. E. Norton, Inc.

NEW YORK, 1200 tons, Professional Center Building, to Hedden Iron Construction Co.

BRIGHTON BEACH, N. Y., 125 tons, Public School No. 225, to Bethlehem Fabricators, Inc.

PHILADELPHIA, 380 tons, building for Otis Elevator Co., to American Bridge Co.

CARLISLE, PA., 150 tons, factory building, to Fort Pitt Bridge Co.

HARRISBURG, PA., 150 tons, warehouse for Appleby Brothers & Whittaker Co., to Jones & Laughlin Steel Corporation.

ECONOMY, PA., 100 tons, mill extension, Standard Seamless Tube Co., to Pittsburgh-Des Moines Steel Co.

PAVILION, N. Y., 500 tons, 1,000,000-cu. ft. gas holder, to Stacey Mfg. Co.

BALTIMORE, 3000 tons, Lord Baltimore Hotel, to Lehigh Structural Steel Co.

CHESAPEAKE & OHIO RAILROAD, 2800 tons, viaduct at Covington, Ky., to Mount Vernon Bridge Co.

LEHIGH VALLEY RAILROAD, 260 tons, bridge at Roselle Park, N. J., to Bethlehem Steel Co.

RICHMOND, VA., 840 tons, Crestwood apartment building, to Richmond Structural Steel Co.

MIDDLETOWN, OHIO, 4000 tons, mill addition at Eastside works, American Rolling Mill Co., to McClintic-Marshall Co.

CINCINNATI, 700 tons, Fountain Square Building, to American Bridge Co.

STICKNEY, ILL., 650 tons, pumping station at sewage treating plant, to American Bridge Co.

CHICAGO, 700 tons, addition to the Chicago Club, to McClintic-Marshall Co.

CHICAGO, 250 tons, building for Dallas Brass & Copper Co., to Hansell Elcock Co.

MUSCODA, WIS., 600 tons, highway bridge, to Worden Allan Co.

SHEBOYGAN, WIS., 260 tons, theater, to Lake Side Bridge & Steel Co.

MILWAUKEE, 500 tons, viaduct, to Milwaukee Structural Steel Co.

CHICAGO & EASTERN ILLINOIS RAILROAD, 750 tons, girder spans, to American Bridge Co.

MONTEREY, CAL., 250 tons, 500,000-cu. ft. gas holder, to Stacey Mfg. Co.

EMERYVILLE, CAL., 100 tons, warehouse for the Paraffine Co., to Moore Dry Dock Co.

SACRAMENTO, CAL., 210 tons, Redwood Creek bridge for State Highway Commission, to United States Steel Products Co.

OAKLAND, CAL., 150 tons, sheet piling for Lafayette dam, East Bay Municipal Utility District, to United States Steel Products Co.

SAN FRANCISCO, 1500 tons, passenger and freight steamer for the Inter-Island Navigation Co., Honolulu, to Bethlehem Shipbuilding Corporation.

SAN FRANCISCO, 260 tons, apartment building, Thirty-third and Geary Streets, to Central Iron Works.

SAN FRANCISCO, 130 tons, hotel, Fifteenth and Valencia Streets, to Central Iron Works.

SAN FRANCISCO, 190 tons, apartment building, Hyde and Greenwich Streets, to Herrick Iron Works.

BREWSTER, WASH., 850 tons, Brewster Toll Bridge, to Wallace Bridge & Structural Steel Co.

Structural Projects Pending

NEWTON, MASS., 810 tons, hospital.

HUNTINGTON, MASS., 300 tons, State highway bridge.

NEW YORK, 1800 tons, Pier No. 46, North River; bids being taken by Department of Docks.

NEW YORK, 400 tons, City Hospital branch in the Bronx.

BROOKLYN, 300 tons, branch of New York Public Library.

STATE OF NEW YORK, 600 tons, highway bridge.

SYRACUSE, N. Y., 1365 tons, Syracuse Memorial Hospital.

HORNELL, N. Y., 500 tons, hotel.

PENNSYLVANIA RAILROAD, 500 tons, four bridges.

PHILADELPHIA, 1500 tons, apartment building at 2031 Locust Street.

PHILADELPHIA, 500 tons, garage for Automobile Club of Philadelphia.

EDDYSTONE, PA., 1200 tons, office building for Baldwin Locomotive Works.

ASHLAND, KY., 125 tons, building at plant of American Rolling Mill Co.

MILWAUKEE, 1000 tons, Cedar Street bascule bridge.

ST. LOUIS, 465 tons, six steel barges for United States Engineers; Howard Shipyards & Dry Dock Co., Jeffersonville, Ind., low bidder.

OKMULGEE, OKLA., 500 tons, factory building for Pine Glass Corporation.

SAN FRANCISCO, 2800 tons, Hymann Building.

LOS ANGELES, 2700 tons, Anthony Building.

OAKLAND, CAL., 275 tons, building for the Mutual Stores, East Fourteenth and Fifty-fourth Streets.

SAN PEDRO, CAL., 520 tons, warehouse at Berth 228, D. & E., for the Los Angeles Harbor Dept.; bids Aug. 24.

ASTORIA, ORE., 800 tons, building for Northwest Pulp & Paper Co.

Lower Rates on Coke from Troy, N. Y., to New England

Holding that rates on coke in carloads from Troy, N. Y., to destinations in New England territory are unreasonable, the Interstate Commerce Commission has prescribed a mileage scale ranging from \$1.13 per net ton for 10 miles and under to \$4.41 for over 475 miles. The new rates are to become effective on or before Sept. 27. Complaint against prevailing rates was made by the Hudson Valley Coke & Products Corporation, Troy, N. Y.

Lake Ore Movement Declines in July

Lake Superior iron ore shipments from upper Lake ports in July were 8,609,082 gross tons or 1,397,011 tons less than in July, 1926. This is a decrease of 13.96 per cent. The season's shipments to Aug. 1 amounted to 26,380,505 tons which contrasts with 24,899,892 tons to Aug. 1, 1926—an increase of 1,480,613 tons or 5.95 per cent. The shipments by ports and for the season in 1927 and 1926 are as follows:

	July, 1927	July, 1926	To Aug. 1	
			1927	1926
Escanaba	931,347	936,760	2,793,646	2,738,652
Marquette	475,018	640,094	1,405,646	1,430,686
Ashland	1,053,368	1,323,222	3,362,554	3,223,054
Superior	2,492,338	2,811,117	7,314,772	6,739,772
Duluth	2,669,875	3,169,415	8,563,747	7,945,649
Two Harbors ..	987,136	1,118,529	2,940,140	2,815,123
Total	8,609,082	9,999,137	26,380,505	24,892,936
Increase ..			1,480,613	
Decrease ..	1,397,011			

Duluth contributed 32.46 per cent of the season's shipments this year against 31.92 per cent last year. Great Northern's proportion this year was 24.87 per cent as compared with 23.92 per cent last year.

PERSONAL

J. E. Montgomery, for the past seven years division manager in charge of the Whitaker works, Wheeling, W. Va., the Martins Ferry works, Martins Ferry, Ohio, and the Beech Bottom works, Beech Bottom, W. Va., of the Wheeling Steel Corporation, has been appointed vice-president in charge of operations, succeeding George W. Moore, resigned. Mr. Montgomery has been identified with the corporation since 1914, having for 12 years previously been with the American Sheet & Tin Plate Co. He was successively superintendent of the Whitaker works and the Beech Bottom works and assistant to the president, Whitaker-Glessner Co., holding the latter position in 1920 when the Wheeling Steel Corporation was formed by a consolidation of Whitaker-Glessner Co., the La Belle Iron Works and the Wheeling Steel & Iron Co. Mr. Moore had been with the organization since 1910 and before going to Wheeling in 1924 as assistant to the late Andrew Glass had been general manager Portsmouth works, Portsmouth, Ohio. He succeeded Mr. Glass. Earl H. Collesler has resigned as general superintendent of the Steubenville works and has been succeeded by J. F. Spellacy, who has been superintendent of the blooming and bar mills.

Frank T. Coffin of the Boston Machine Screw Co. has been made a director of the new Cambridge National Bank, North Cambridge, Mass.

George St. J. Perrott, associated with the Bureau of Mines for 10 years, has been appointed superintendent of the bureau's Pittsburgh experiment station. He succeeds Arno C. Fieldner, recently promoted to the post of chief engineer of the division of experiment stations.

Charles G. Olson, formerly of the main office of the Chain Belt Co., Milwaukee, has been transferred to the Detroit office at 8855 Woodward Avenue. He has been connected with the sales department for several years.

Harry W. Black, formerly president of the Black Steel & Wire Co., Kansas City, Mo., now the Union Wire Rope Co., will be vice-president in charge of operations and sales of the Black Wire Rope Co., Peoria, Ill., which was organized recently to manufacture wire rope.

James K. Payne, recently manager of the fire brick department of the Hydraulic-Press Brick Co., St. Louis, has opened offices at 419-422 Chemical Building in that city to engage in the manufacture and sale of refractories and kindred products.

Claude Anderson, recently vice-president of W. W. Hearne, Inc., Philadelphia, and previously associated with the Matthew Addy Co., Philadelphia, has been added to the sales organization of the Debevoise-Anderson Co., Inc., 114 Liberty Street, New York, dealer in pig iron, ore, limestone, coal and coke.

Charles Frederick Force has retired from the Charles C. Force & Son wrought iron works, Madison, N. J.

H. L. Carpenter, Jr., and John A. Morrison, associated in sales and purchasing capacities for more than 25 years with the Ajax Metal Co., Philadelphia, have resigned from the company to form the Car-Mor Metal Co., Gaul and Gordon Streets, Philadelphia, to engage in the buying, selling and manufacture of non-ferrous metals.

John W. McMahon, for the last five years superintendent of the cold-rolling department of the Superior Steel Corporation, Pittsburgh, has been made special representative of the corporation. He became asso-

ciated with the company 22 years ago as a roller and has been successively department foreman, assistant superintendent and superintendent of the cold-rolling department.

George W. French on Aug. 2 observed his fiftieth anniversary as a salesman with J. J. Mohr & Son, Bullitt Building, Philadelphia, dealer in pig iron, coal, coke, ores, fire brick and fire clay. The occasion was also Mr. French's seventy-seventh birthday.

J. R. Sproat has been appointed superintendent of the William B. Scaife & Sons Co., Pittsburgh, manufacturer of steel tanks, range boilers and water-purifying apparatus, succeeding the late G. A. Meckel. Mr. Sproat has had experience in all the departments of the company.

W. H. Kingsley has been appointed direct factory representative in New York for the Clark Controller Co., Cleveland. He will work in conjunction with K. I. Clisby, 74 Trinity Place, New York.

H. H. Straus, whose election as vice-president in charge of rail steel for production and sales for the Inland Steel Co., Chicago, was announced in THE IRON AGE last week.



Charles M. Schwab spoke at the dedication of the International Peace Bridge at Buffalo on Aug. 7. He said that much as he thought of the ordnance plants of his company he could see them sunk in the bottom of the sea if thus everlasting peace could be brought about among the nations. Interviewed by Buffalo newspapers, Mr. Schwab said that while the steel business showed a decided drop off in June and July, he believed the low point for the season had been passed and that it was merely a seasonal slackening. He looked for satisfactory business conditions for the remainder of the year.

Walter R. Kneeland, for 25 years identified with United Engineering & Foundry Co., Pittsburgh, in the roll sales department, has joined the Youngstown Foundry & Machine Co., Youngstown, Ohio, as manager of roll sales.

Frank B. Baird, the well known Buffalo ironmaster, presided at the ceremonies of Sunday, Aug. 7, attending the dedication of the International Peace Bridge at Buffalo. Mr. Baird is president of the Buffalo & Fort Erie Public Bridge Co., which built and operates the great bridge. He was for many years head of the Buffalo-Union Furnace Co. at Buffalo, and is president of the Canadian Furnace Co., Ltd., which operates a blast furnace at Port Colborne, Ont.

H. E. Lewis, vice-president Bethlehem Steel Corporation, has sailed for Europe and will spend several weeks in England and Wales.

Alfred Neuffer, contracting engineer in the concrete steel department of the McClintic-Marshall Co., Philadelphia, has resigned to become professor of engineering in the University of Hawaii. He has been succeeded by C. R. Laverty.

Merger of Radiator Companies Embraces Fifth of Country's Output

Negotiations have been completed for a merger of six manufacturers of radiators and heaters under the name of the National Radiator Corporation. The merger will include the National Radiator Co. and the Union Radiator Co., Johnstown, Pa.; the Utica Heater Co., Utica, N. Y.; the Niagara Radiator & Boiler Co., North Tonawanda, N. Y.; the Continental Heater Corporation, Dunkirk, N. Y., and the Gurney Heater Mfg. Co., Boston. The new corporation, it is said, will embrace more than one-fifth of the country's output of radiators and will be second only to the American Radiator Co. Ten plants will be operated: two at Johnstown, Pa.; two at New Castle, Pa., and one each at Utica, Dunkirk and North Tonawanda, N. Y.; Trenton, N. J.; Framingham, Mass., and Chicago. Following the completion of a new radiator plant at New Castle, Pa., the corporation will have an annual capacity of about 60,000,000 sq. ft. of radiator surface and of more than 90,000,000 lb. of boilers. Warehouses and branch offices are maintained by the constituent companies at most of the principal cities of the country, and the location of plants will enable the corporation to serve all the consuming districts of the United States, as well as export markets.

Operating management will continue in the hands of former executives of the merging companies. John H. Waters, president of the National Radiator Co., will be chairman of the board; Edward Norris, president of the Utica Heater Co., will be president, and E. C. Andrews, president of the Niagara company, will be chairman of the advisory committee.

The capitalization of the corporation will consist of \$12,000,000 6½ per cent sinking fund gold debentures, 60,000 shares of \$7 cumulative convertible preferred stock (no par value) and 270,000 shares of no par common stock. Consolidated net earnings of the merged companies for the year ended Dec. 31, 1926, were \$3,472,184.

Offer 40 Per Cent on Bonds of Rogers-Brown Iron Co.

The bondholders' protective committee of the Rogers-Brown Iron Co., Buffalo, has received a cash offer of \$400 per \$1,000 face value for the company's general and refunding mortgage 7 per cent gold bonds due in 1942. The offer is conditional on the deposit prior to Oct. 1 of at least 75 per cent of the \$3,987,300 in bonds outstanding. The committee already controls 65 per cent of the bonds and has issued a statement urging the deposit of additional bonds in order to avoid receivership and liquidation.

The offer was made following an examination of the affairs of the company by Coverdale & Colpitts, consulting engineers, 66 Broadway, New York. They found that refinancing would involve an expenditure of approximately \$3,000,000 for the purpose of securing an enlarged and improved coke supply, general improvement of operating layout at Buffalo and additional working capital. It would be difficult to raise this amount, according to the consultants' report, even if the securities issued for the purpose of raising the money could be given a first lien on the company's assets. Messrs. Coverdale & Colpitts stated that the 40 per cent cash offer was more than the bondholders could expect to realize as a result of liquidation and recommended its acceptance. The bondholders' protective committee, headed by George B. Cortelyou, Jr., has in turn recommended the acceptance of the offer.

Exports Exceed Imports

Exports of merchandise from the United States in the first six months of 1927 are reported by the Department of Commerce at \$2,366,678,280, a gain of more than 7 per cent from the figures from the corresponding period in 1926, which were \$2,206,853,658. In contrast with last year, exports this year were greater than imports. The import total was \$2,124,117,929, compared with \$2,302,039,013 last year.

OBITUARY

WIGGINTON ELLIS CREED, president Columbia Steel Corporation and Pacific Gas & Electric Co., San Francisco, died at his home in Piedmont, Cal., Aug. 6, aged 50 years. Death was caused by a stroke of apoplexy. He was born in Fresno, Cal., Feb. 8, 1877, and was graduated from the University of California in 1898. In 1900 he started the practice of law in San Francisco. Since 1915 he had been recognized as a national authority in matters relating to public utility corporations. He reorganized the East Bay Water Co., Oakland, Cal., and served as its president until 1920. When he assumed the presidency of the Pacific Gas & Electric Co. in 1914, he became president of the Columbia Steel Corporation, which, under his administration, became the largest individual producer of pig iron and steel products in the Far West. Besides holding the presidency of the above named companies, Mr. Creed was an officer and director in a number of industrial and financial organizations on the Pacific Coast.

REAR ADMIRAL FRANCIS T. BOWLES, retired, well known naval constructor and for several years president of the Fore River Shipbuilding Corporation, Philadelphia, died on Aug. 3 at his home in Barnstable, Mass. He was born at Springfield, Mass., in 1858, and was graduated from the United States Naval Academy. Later he was sent to Greenwich, England, for special post-graduate work in the Royal Naval College, specializing in naval architecture. Upon his return to this country he became an advocate of steel construction in ships and played a large part in the rebuilding of the American Navy along modern lines. During McKinley's administration he was appointed chief constructor of the United States Navy, but left the service to become president of the Fore River plant. He retired from active business in 1914, but was recalled to the service during the World War to become assistant general manager of the Emergency Fleet Corporation. Early in 1918 he was placed in active charge of the Government ship yards at Hog Island, Pa.; Newark, N. J., and Bristol, Pa. He was a member of numerous engineering organizations.

JOSEPH C. CLUTTS, for many years president and general manager of the Wellston Iron & Steel Co., Wellston, Ohio, and widely known in the Hanging Rock region of southern Ohio, died at his home near Ironton, Ohio, on July 28. He was born in 1861 and early in life became associated with the Milton Furnace Co., Wellston. He continued with the organization when it was a part of the Wellston Iron & Steel Co., later becoming the active head of the company. Mr. Clutts was also actively interested in ore mines in the northern peninsula of Michigan, and a few years ago he was invited by the Canadian Government to study the iron deposits in British Columbia.

GILES L. REYNOLDS, retired treasurer and for many years a director of the American Pulley Co., Philadelphia, died on Aug. 2 at his home in New London, Conn. He was 81 years of age and had helped to organize the Pulley company in 1896.

A. B. ARMSTRONG, secretary, treasurer and general manager of the Superior Machine Tool Co., the Kokomo Spring Co. and the Kokomo Nail & Brad Co., Kokomo, Ind., died on July 29, following a long illness. He was actively identified with other manufacturing and banking institutions at Kokomo.

DANIEL J. GEARY, for a number of years assistant manager of sales Republic Iron & Steel Co., Youngstown, died recently at Owensboro, Ky., aged 58 years.

WALTER J. DYER, secretary of the Dyer Brothers Golden Gate Iron Works, San Francisco, died at the Fairmont Hotel, San Francisco, on July 29, following an illness of several weeks. He had been secretary of the fabricating plant since it was founded in 1902.

Steel Dumping Alleged at Hearing

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fering German steel! If one jobber purchases low-priced foreign steel, it is necessary for the other jobbers competing with him either to buy foreign steel themselves or obtain price concessions from domestic producers.

"In some instances the quoted prices have been so low that it has been impossible for us to meet them. In those cases we have directly lost business to the German producer. Five outstanding examples, involving substantial tonnage, may be cited as illustrations, where we have actually lost the business to German producers within the last year and a half: First, a hydroelectric dam project near Baltimore involving several thousand tons of reinforcing bars; second, a grain elevator at Philadelphia involving several thousand tons of reinforcing bars; third, a large consumer of bands with a plant near New York City, in which part of the business was taken by the German producer; fourth, a very substantial tonnage of sheet piling (classified as structural shapes) for a project in Florida, near Miami; fifth, a substantial tonnage of plates purchased from Germany by a shipbuilding company near New York, which is ordinarily a customer of ours. In addition to these specific cases, there have been many similar instances of tonnage lost to German competitors in sales to our customers both on the Atlantic and Pacific coasts.

"Neither the domestic manufacturer, in urging this action, nor the Government, in taking it, proposes any action which will operate against fair competition between American and German producers," said Mr. McMath. "We are, in effect, saying to the German producers (as well as to the French and Belgian), 'you may enter our market if you do not destroy it by sales at prices which you would not make in your own markets.' If sales are made in the United States on the same basis as they are made to the particular producers' own countrymen, no penalty will be imposed, and our ordinary duties (which are substantially less than the present German duties and which are in no sense prohibitive, being, on the principal products, less than 10 per cent ad valorem) will be the only ones collected.

"In the face of (1) the large increases in importations; (2) the announced policy of export underselling even in markets such as the United States, where capacity for steel making for our own consumption is entirely adequate; (3) the artificially organized character of the European producers, and (4) the present effect upon and condition of American markets, where prices of steel products are at levels not permitting a fair return on capital investment, we submit that the effectiveness of the anti-dumping act should no longer be withheld."

Other Domestic Producers Affected

Mr. Argetsinger said that the Youngstown Sheet & Tube Co. had run into strong competition with Germany on the Pacific Coast, especially in connection with seamless oil country goods, the German prices being much lower than those of domestic manufacturers. Other competitive products from Germany were said to be welded steam, gas and water pipe. It had been found impossible, Mr. Argetsinger said, to sell nails and barbed wire in Texas against German competition. There are also, he stated, large importations of nails from Germany through Charleston, S. C.

Mr. Uphouse said that during last year the Donner company's tonnage decreased, and the decline was believed to be due to German importations. He said that his company suffers in connection with jobber steel business because of cuts in prices on foreign steel.

Mr. Miller of the Pittsburgh Steel Co. said that his company had found a great deal of competition in seamless tubing from German producers, who, it was stated, make low prices. Mr. Miller declared that he cannot say that there actually has been dumping, but said that he thought there was. German competition in cotton ties was declared to be so strong that there is no money in this business for domestic makers. German competition in nails and wire had been encountered at

New Orleans, Mr. Miller said, and has reached a point where it is almost impossible for domestic producers to compete.

C. C. Cooper, Jr., of the Washington law firm of Colliday, Clifford & Pettus, who, with Mr. Clifford, appeared as counsel for the German importers, said that cotton ties are not made in Germany for domestic consumption and therefore do not enter into dumping because there is no domestic market. This position was challenged by counsel for domestic producers.

Mr. Foss spoke of German wire rods being sold at \$2 a ton less than domestic wire rods and also of other products from Germany, including steel pipe and sheets, as being sold at prices which are much below the domestic market. Mr. Miller of the Pittsburgh Steel Co. interposed to say that he had been informed that German producers are carrying from 3000 to 5000 tons of steel on the Pacific Coast.

Mr. Miller of the Gilbert & Bennett company said that the domestic poultry netting industry has been injured by Belgian and German competition, especially the latter. He asserted that German netting is selling at 15 to 20 per cent under domestic prices and that in the face of this there is under foot an effort to get the tariff duty reduced from 40 to 25 per cent by change of classification.

Mr. Clark said that German producers quote prices on hot strips at from \$2 to \$4 a ton under German domestic prices, while their prices, with freight, etc., deducted, are about \$6 less than home prices and \$15 to \$20 under American prices.

Mr. Holliday also declared that the Jones & Laughlin company had come into contact with serious German competition and salesmen had reported conditions about the same as those recited by the Bethlehem Steel Co. and other domestic manufacturers. He said he could not actually declare that there is dumping of steel but that he did know the presence of foreign steel has had a demoralizing effect.

Importer Declares Receipts Are Inconsequential

Mr. Dix declared that imports from abroad were inconsequential and that there had been no dumping. He said that total imports of structural shapes and bars from Germany in 1926 were 21,000 tons and 15,000 tons respectively, and this, he declared, apparently constituted the substance of the entire case. Such tonnages, it was asserted, could not injure the domestic industry. He read steel earnings to show the condition of the American industry, saying that in 1926 steel manufacturers generally had the most prosperous year in their history. His conclusions as to the significance of the earnings were challenged by Mr. McMath, who spoke of comparatively small net income based on capital investment. Mr. Dix said that during the first six months of 1927 the Wolff company's imports consisted of only 16,500 tons, and that this represented only about one-third of the daily shipments of the United States Steel Corporation. He read quotations from THE IRON AGE to show that prices of German bars are higher than those quoted in Belgium and Luxemburg.

"Germany has to meet Belgian and French prices, and the minute we meet them we are suspected of dumping," said Mr. Dix.

Speaking of German-American trade, Mr. Dix said that the balance was in favor of the United States. Pointing out that he had been with export departments of large American steel companies, Mr. Dix said that it could not be denied that domestic producers consistently sell in foreign markets at prices of \$5 to \$10 a ton less than domestic prices.

When Mr. Dix pointed out the alleged inconsistency of domestic manufacturers in selling abroad at prices less than domestic level and then charging dumping into the United States, Commissioner Camp said that the United States Government never criticized any country for enacting and enforcing anti-dumping laws. "There is a big distinction," said Mr. Camp, "between meeting prices in a country where no steel is produced and in countries which are sources of production."

Active Year at Bureau of Standards

Concluded from page 329

mainly toward establishing general relations between creep, time, temperature and stress in typical ferrous alloys, and the comparison of test data obtained at different laboratories.

Rail Steel and Endurance

On account of the fear that transverse fissures may be associated with "shattering cracks" in rails, which are sometimes claimed to appear as a result of cooling stresses, study of the high-temperature properties of rail steel is under way. The several phases of the rail steel work are in cooperation with the Manufacturers' Rail Steel Committee, the American Railway Engineering Association and the American Society of Civil Engineers' Track Stress Committee.

Transverse fissures in rails are progressive, or fatigue, failures developing from definite nuclei under repeated track stresses. Whether these nuclei, as shattered zones or overstressed areas, exist in the rails as laid is a moot question. The quantitative endurance properties of rail steel, before and after service, have not heretofore been directly determined. Specimens from new rails made by standard methods, and also from rails made from big-end up, hot-top ingots (the properties of the latter being known through a cooperative study (4.15 per cent) made with a research associate from the Gathmann Engineering Co.), have been tested in the usual rotary beam fatigue test (2.10 per cent). New 100-lb. rails passing the specifications of the American Railway Engineering Association give specimens whose endurance limits range from plus or minus 41,000 lb. per sq. in. to plus or minus 59,000 lb. per sq. in. Overstressing lowers the endurance limit, understressing raises it, and endurance limits of plus or minus 65,000 lb. per sq. in. at least can be reached by understressing. A variation of this magnitude in the endurance of rail steel is food for thought.

It should be emphasized that this work is on endurance of rail steel, not of rails, because the latter problem involves many questions as to actual stresses in the track, the answers to which are not yet clear. Plans have been made for further endurance tests of specimens of steel from the same lots of rails after these rails, now under observation in service, are removed from the track.

High-Speed Steel and Machinability

Machinability, measured by the cutting speed at which lathe tools last a definite time on roughing cuts, depends upon the composition of the steel cut. The lower carbon steels machine more readily than high-carbon or alloy steels heat treated for the same tensile strength, and nickel steel is more readily machinable than chromium steel, with or without Ni, V or Mo. At a very high tensile strength the order reverses and Ni-Cr and Cr-Mo steels permit the highest cutting speeds. Thus, hardness figures are not quantitative criteria of machinability. Variations in the quality of the high speed tool steel may affect the cutting speed more than variations in the composition of the steel cut. A full report on roughing cuts was published and attention is now being turned to finishing cuts. (2.70 per cent.)

The chemical composition of high-speed steels for lathe roughing tools has been found to be comparatively flexible, i.e., changes which would cause a marked difference in properties of carbon steels do not necessarily modify to a measurable degree the performance in rough turning. Examples are found in the additions of impurities such as small amounts of As, Sb, Sn, Cu, Al, Mo, etc. However, these elements frequently change the microstructure and working properties. (3.10 per cent.)

Cast Iron

The search for alleged obscure differences in cast irons from various sources, claimed to affect their propensity to blister on enameling, has been continued (2.70 per cent) in cooperation with the American Ceramic Society and the enamel section of the bureau.

Methods of determining the fluidity of cast iron, in cooperation with the American Foundrymen's Association, work on the effect of the use of scrap in the blast furnace, and work on pearlitic iron in cooperation with a research fellow from the Spanish Artillery Academy (1.15 per cent) are other problems before the bureau.

Molding Sand

Active work on molding sand (2.30 per cent) in cooperation with the American Foundrymen's Association includes a search for more rapid methods of fineness testing and of moisture determination and on the sintering test, which seems useful in measuring adherence to the casting, with consequent high cleaning and machining costs. The behavior of glycerine and ethylene glycol facings in minimizing adherence of some poorly refractory sands to the castings has been studied.

Carburizing Steels

"Abnormal" carburizing steel is really different from "normal" steel. The critical cooling rate in quenching of abnormal steel is higher than that of normal steel. The use of more drastic quenching media, so that the critical rate is exceeded, will avoid soft spots in abnormal steel, but if the carburizer does not find it economical to change his quenching practice so he may utilize the occasional shipment of abnormal steel without running into soft spots, he may use steels with sufficient manganese to bring the critical cooling rate below that obtaining in his usual quenching practice. Cooperative work (5.20 per cent) with the Bureau of Mines on the causes of abnormality indicates that the explanation of McQuaid and Ehn, i.e., submicroscopic nuclei for crystallization in passing through the critical range, is probably the correct one. The presence of dissolved oxygen in a quenching solution materially increases the tendency toward soft spots when an abnormal steel is quenched.

Special Alloys

Air hardening rivet steels (0.50 per cent) have been studied at the request of the War Department in the hope of making the rivets of an armored tank as resistant to projectiles as the armor itself. Rivets have been found with four times the shearing strength of ordinary rivets, and with ballistic resistance equal to that of the armor itself. Promising steels for use in riveting light armor are those of 0.25 per cent C, 0.50 Mn, 1.50 Cr. and 1.85 Ni or 0.25 C, 0.80 Mn, 0.80 Cr. and 0.80 Mo. Control of the carbon content is important.

A report on the deterioration of steels in the synthesis of ammonia, previously studied in cooperation with the Fixed Nitrogen Research Laboratory, has been prepared. This deterioration takes place by fissuring and intercrystalline penetration, which are minimized by the use of steel containing at least 2.25 per cent chromium with not over 0.30 per cent carbon. The presence of vanadium is of no advantage for this purpose.

Other Activities

The research projects account for a total of 75 per cent of the funds. Of the balance, 12.5 per cent is devoted to routine testing and minor research for the Government and to the work on specifications; while 12.5 per cent goes principally to the extensive task of giving metallurgical information to the public in the shape of mimeographed letter circulars, of answers to thousands of letters and conferences with hundreds of visitors.

While the activities outlined above were initially chosen, almost without exception, at the urgent request of metallurgical firms or societies and have been thoroughly discussed at the meetings of the metallurgical committees advisory to the bureau, other suggestions that will aid in orienting the work to better advantage will be gratefully received. It is to give a picture of the way public funds are being invested in metallurgical research and to bring out constructive suggestions for improvement that these annual progress reports are laid before the metallurgical industry.

Belfont Steel & Wire Co. in Hands of Its Creditors

Properties of the Belfont Steel & Wire Co., Iron-ton, Ohio, have been placed in the hands of a committee representing the principal creditors of the company, who will have charge of the management for a period of one year. Claims of all creditors will be held in abeyance during that time, and no steps will be taken to interfere with the operation of the company's activities.

The committee consists of J. C. Miller, representing the Fifth-Third Union Trust Co., Cincinnati; D. H. Putnam, Iron-ton By-Product Coke Co.; O. D. Hayes, First National Bank of Iron-ton; W. G. Woollenweber, Wheeling Steel Corporation, and D. T. Croxton, Cleveland-Cliffs Iron Co.

The company owns the Belfont and Sarah blast furnaces and a nail and wire mill. It also has a two-thirds interest in the Ashland Steel Co., Ashland, Ky., and a half interest in a river towboat and a fleet of six barges. The Belfont stack, which was put out several weeks ago, will be blown in again as soon as necessary repairs of the furnace lining can be made, while the nail and wire mill already has resumed operations.

Servel Corporation in Receivership; Reorganization Is Planned

Reorganization and refinancing of the Servel Corporation, Evansville, Ind., manufacturer of gas and electric refrigerators, truck bodies and gasoline motors, is planned as the result of the appointment of receivers by the Superior Court at Evansville. Among the changes to be made are the transfer of the Newburgh, N. Y., plant to Evansville and the removal of all offices to the latter city. An investment of approximately \$3,000,000 in the Evansville plant is to be arranged for.

The receivers are Frank E. Smith, president Servel Corporation; Frederick P. Nehrbas, vice-president, and Frank Wilson, vice-president Old National Bank of Evansville. The company, although short of money, has on hand assets valued at \$3,000,000 in the form of raw and manufactured materials, while liabilities amount to \$1,500,000. Both the Servel Mfg. Co., the producing unit, and the Servel Corporation, the sales organization, are involved, and the receivers will take charge of both companies.

Automotive Engineers to Hold Sessions in Cleveland and Detroit

Eight sessions of the four-day annual national production meeting of the Society of Automotive Engineers are to be devoted to addresses and discussions on a variety of automotive manufacturing subjects. Morning and evening sessions are to be held Sept. 19 and 20 in Cleveland during the week of the National Steel and Machine Tool Exhibition at Detroit and the convention of the National Machine Tool Builders' Association at Cleveland, while the afternoons will be devoted to inspection of the exhibits at the machine tool exposition and visits to Cleveland factories.

The night of the second day of the S. A. E. meeting the members will embark on the night boat for Detroit, where the second two days of the meeting will be held to afford opportunity for members to visit the exhibition and convention there of the American Society for Steel Treating. Forenoon and evening sessions are to be held in Detroit on Sept. 21 and 22, while the afternoons will be available for members to visit the steel treaters' exhibition and make inspection trips.

Headquarters for the S. A. E. are to be at the Hotel Winton in Cleveland and at the Statler Hotel in Detroit. An evening entertainment is to be given on the night boat at Cleveland prior to its departure at 11.30 p. m.

The program for the four days' meeting, as tentatively arranged, provides for 16 addresses on production engineering, materials, metallurgy, machine tools, manufacturing methods, time study, rate setting, fire hazards and related subjects.

Hold Coal Rates Unreasonable from Indiana and Illinois Fields to Chicago

Rates on bituminous coal from Illinois and Indiana fields to points in the Chicago switching district were found to be unreasonable in a decision reached Aug. 2 by the Interstate Commerce Commission. It was found that the rates to the Chicago switching district from the Danville, Brazil-Clinton, Linton-Sullivan groups were unreasonable to the extent that they exceed \$1.35, \$1.55 and \$1.65 per net ton respectively. The commission directed that the change in rates be made effective Oct. 20.

Wisconsin to Prosecute for Failure to Carry Compensation Insurance

The Industrial Commission of Wisconsin has requested the attorney-general to commence criminal prosecution against L. J. Gehl, doing business under the name of Marshfield Boiler Works, Marshfield, Wis., for failure to carry workmen's compensation insurance.

This is the first case in the history of the Industrial Commission that the attorney-general has been requested to commence criminal prosecution. The reason for the action is that Mr. Gehl had been warned both by telephone and by letter to carry workmen's compensation insurance, but failed to do so. Later an employee was injured, and he now fails to receive compensation for his injury.

Willamette Iron & Steel Co. to Build Diesel Engines

The Willamette Iron & Steel Co., Portland, Ore., through its president, Edward C. Pape, has announced that its plant will be expanded for the manufacture of Diesel engines, designed particularly for marine craft. The Sumner engine, developed by Henry W. Sumner, is the type for which the company has taken out manufacturing rights and the engine will be sold under the name of Sumner-Willamette. They range in size, according to Mr. Sumner, from 125 to 800 hp., and are of the two-cycle type with open crankshaft and crosshead.

Black Hardware Co. to Manufacture Nails and Barbed Wire

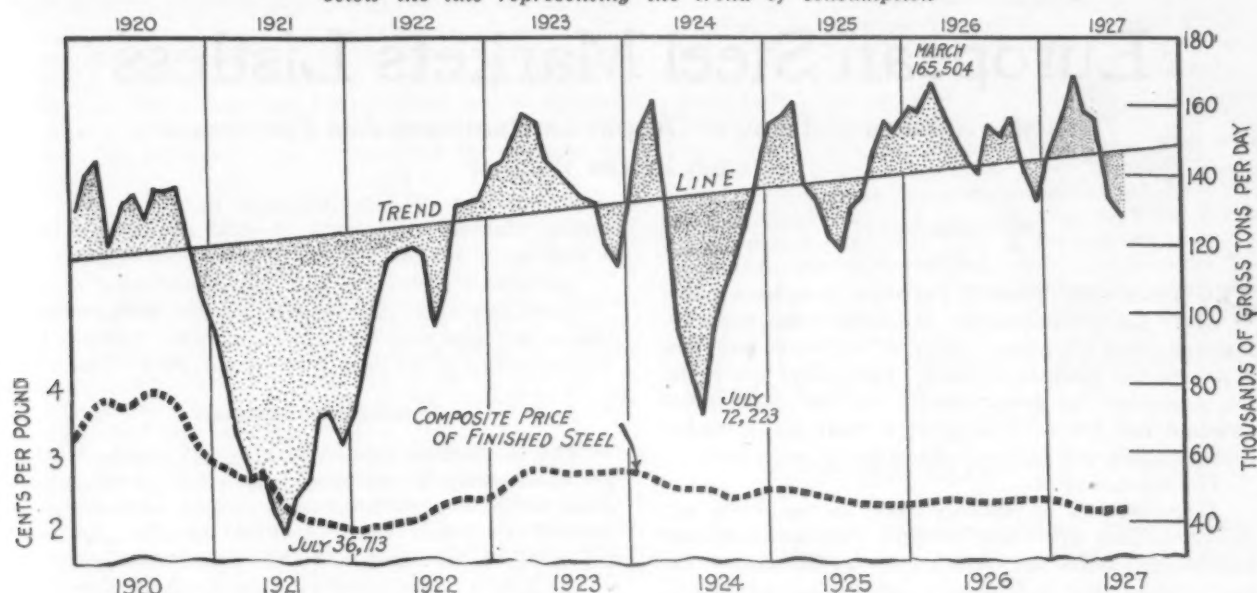
The Black Hardware Co., Galveston, Tex., has bought wire-drawing equipment, including about 60 nail machines that were formerly used in the plant of the American Steel Co., Ellwood City, Pa., now defunct, and will use the equipment to manufacture nails and barbed wire at Galveston. Imported wire rods, which are being offered at about \$30, delivered, Galveston, will be used by the Black company. There is said to be a market in the Southwest of about 1000 kegs of nails in a day. Barbed wire will be made, also.

American Sheet & Tin Plate Co. Mills Have Few Accidents

During the month of June, 1927, operations were conducted without a single lost-time accident at the following works of the American Sheet & Tin Plate Co.: Cambridge works, Cambridge, Ohio, with 418 employees; Chester works, Chester, W. Va., with 436; La Belle works, Wheeling, W. Va., with 412; Leechburg works, Leechburg, Pa., with 455; Mercer works, Farrell, Pa., with 658; roll and machine works, Canton, Ohio, with 212; Wood works, McKeesport, Pa., with 790; and American works, Elwood, Ind., with 983; a total of 4364 employees.

At each of the following plants only one lost-time accident occurred in June: Dover works, Dover, Ohio, with 601 employees; Pennsylvania works, New Kensington, Pa., with 624; Pittsburgh works, New Kensington, Pa., with 384; Scottdale works, Scottdale, Pa., with 318; Old Meadow works, Scottdale, Pa., with 469; Vandergrift works, Vandergrift, Pa., with 3031; and Gary sheet mill, Gary, Ind., with 2584.

Production of Steel Ingots in July Continued the Decline Recorded in June. It is consequently much further below the line representing the trend of consumption



Decline Continues in Ingot Output

Daily Rate of 127,134 Tons Was 4.7 Per Cent Below June—Seven Months, 3.6 Per Cent Under Last Year

CONTINUING the decline which began in April, production of steel ingots in the United States in July is calculated by the American Iron and Steel Institute at 3,178,342 gross tons. This is based on returns from companies which, in 1926, produced 95.40 per cent of the total tonnage. With 25 working days, the July production was 127,134 tons a day. This compares with 133,387 tons a day in the 26 days of June and with 3,468,055 tons total for June. The figures are considerably below those of July, 1926, when, with 26 working days, a production of 3,634,993 tons represented 139,807 tons a day. Operation in the month just past is estimated at 78.29 per cent of capacity, compared with 82.15 per cent in June and with 86.96 per cent in July, 1926.

Bessemer steel in July fell off more than 10 per cent

from the June figure of 486,047 tons, standing at 436,446 tons. Open-hearth steel fell off about 8 per cent, from 2,822,477 tons to 2,595,692 tons.

For the first seven months of the year, calculated production stands at 26,796,783 gross tons, or 3.6 per cent under the 27,788,802 tons produced in the first seven months of 1926. If allowance be made for one extra working day last year, the reduction was approximately 850,000 tons, or slightly more than 3 per cent.

Estimating at 1200 tons a day the production of electric and crucible steel ingots, which no longer are reported by the institute, the July total would appear to be about 128,300 tons a day, or close to 8 per cent under last year's figure. Details of recent months are shown in the table.

Production of Steel Ingots (Gross Tons)

Months	Reported by Companies Which Made 95.40 Per Cent of the Steel Ingots in 1926		Calcu- lated Monthly Production All Companies	Approximate Daily Production All Companies
	Open- Hearth	Bessemer		
1927				
Jan.	3,041,233	545,690	3,759,877*	144,611*
Feb.	3,042,232	565,201	3,781,376*	157,557*
March ...	3,701,418	590,716	4,499,092*	166,633*
April ...	3,340,852	565,634	4,094,849*	157,494*
May ...	3,272,810	557,683	4,015,192*	154,430*
June ...	2,822,477*	486,047	3,468,055*	133,387*
July	2,595,692	436,446	3,178,342	127,134
7 Months	21,816,714	3,747,417	26,796,783	148,871
*Revised.				
1926				
Jan.	3,326,846	581,683	4,132,210	158,931
Feb.	3,023,829	556,031	3,785,051	157,710
March ...	3,590,791	635,680	4,468,617	165,504
April ...	3,282,435	601,037	4,105,799	157,915
May ...	3,201,230	516,676	3,927,979	151,076
June ...	3,036,162	498,764	3,734,153	143,621
July	2,911,375	526,500	3,634,993	139,807
7 Months	22,372,668	3,916,371	27,788,802	153,529
Aug. ...	3,145,055	627,273	3,986,966	153,345
Sept. ...	3,089,240	612,588	3,913,383	150,515
Oct. ...	3,224,584	630,526	4,074,544	156,713
Nov. ...	2,915,558	592,239	3,705,744	142,529
Dec.	2,788,479	493,172	3,466,766	133,337
Total ...	37,535,584	6,872,169	46,936,205	150,920

German Company to Erect Rhine Bridge at Rotterdam

HAMBURG, GERMANY, July 23.—The United Steel Works, Düsseldorf, has booked an order for the largest Dutch bridge over the Rhine River at Rotterdam. The price was \$2,900,000, with an additional \$310,000 to be expended for machinery and other equipment. The lowest Dutch bid was \$3,710,000. The Netherlands Government offered the town council of Rotterdam the difference between the German and Dutch bids in order that the contract might go to a domestic company. The proposal was rejected, however, on the ground that the United Steel Works offered better construction and quicker erection.

July shipments of railroad locomotives from principal manufacturing plants, based on reports received by the Department of Commerce, totaled 59 locomotives, as compared with 89 in June and 132 in July, 1926.

The Allis-Chalmers Mfg. Co., Milwaukee, Wis., for the six months ended June 30, had net profits of \$1,682,150, equivalent to \$4.27 a share on the common stock, as against \$1,654,559, or \$4.18 a share, in the corresponding period last year.

European Steel Markets Listless

British Holidays and Lower Output on Continent Are Features—
French Prices Weaker

(By Cablegram)

LONDON, ENGLAND, Aug. 8.

PIG iron is dull. Pease & Partners, Ltd., have closed their Tees Ironworks by blowing out the three remaining blast furnaces. Only 37 furnaces are now active on the Northeast Coast. Consumers are pressing operators for lower prices, but the makers are adamant and are resolved to close their plants rather than accept lower figures. Hematite is quite easy.

Foreign ore is idle.

Finished steel is virtually dead, as the works are just reopening after the holidays. As no important business has developed during the vacation period, the works, especially in Scotland, are starting up slowly.

Tin plate inquiry is improving, but sales are still

small. Makers are anxious to raise the price, which is well below the cost on Welsh steel.

Galvanized sheets are dull and prices easy.

Black sheets to Japanese specifications have recently been active, and some thin-sheet rollers are sold out for the remainder of the year. Other markets are inactive.

Continental Conditions

The Continental market is generally quiet. Works are endeavoring to maintain prices, but where orders are essential competition is keen. British users of semi-finished steel are showing little interest. German 2½-in. billets have been sold at £4 4s. 6d. (\$20.50) f.o.b.

On July 1 there were 54 blast furnaces active in Belgium.

FRENCH EXPORTS SMALL

Competition from Germany on Semi-Finished and from Britain on Pig Iron Are Factors

PARIS, FRANCE, July 29.—Export sales are becoming smaller, and domestic demand is unsatisfactory. Improved conditions in the export of iron and steel are not expected until the question of international associations of producers has been decided. In the domestic field, the purchasing power of French consumers has been reduced by heavy taxes and the continued high cost of living. The resulting limitation of consumption has caused the growth of sizable stocks of raw and finished products at producers' works, so that revival of purchasing may be delayed for some time. In some instances producers have been forced to curtail operations to about three days a week, and most mills are working on reduced schedule. In many cases the domestic prices of products have declined until they are on a par with the export quotations.

French output of pig iron in June totaled 746,644 metric tons, compared with 794,175 tons in May. Production of pig iron for the first half was 4,636,992 metric tons. The total output of steel ingots in the first six months of this year was 4,069,652 metric tons, of which 671,907 tons was produced in June and 711,874 tons in May. On July 1 there were 143 furnaces in blast, 36 ready to blow in and 39 in construction or under repair.

Pig Iron.—At a recent meeting of the French, Belgian and Luxemburg producers of pig iron in Paris, a decision was reached as to the total amount of pig iron that French furnaces would be permitted to ship to Belgium and Luxemburg. This entente has decided upon a decrease of 2s. 6d. (60c.) per ton in export prices. As a result, the Antwerp price on export iron has been dropped to £3 5s. (\$15.76) per ton for small lots and £2 17s. 6d. (\$13.94) per ton for orders of 5000 tons or more. This decrease in quotations apparently is the result of the keen competition offered by British iron. In some quarters it is believed that stability in the export price of pig iron will continue to be impos-

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.85 per £ as follows:

Durham coke, del'd.	£0 19s.			\$4.60	
Bilbao Rubio ore†	1 1	to £1 1¼s.		5.09	to \$5.15
Cleveland No. 1 fdy.	3 12½			17.57*	
Cleveland No. 3 fdy.	3 10			16.97*	
Cleveland No. 4 fdy.	3 9			16.73*	
Cleveland No. 4 forge	3 8½			16.61*	
Cleveland basic	3 15	to 3 15½		18.18	to 18.30
East Coast mixed	3 15½			18.30	
East Coast hematite	3 16			18.42	
Rails, 60 lb. and up.	7 15	to 8 5		37.58	to 40.01
Billets	7 5	to 7 10		35.16	to 36.37
Ferromanganese	12 0			58.20	
Ferromanganese (export)	10 15	to 11 0		52.13	to 53.35
Sheet and tin plate bars, Welsh	5 15			27.88	
Tin plate, base box	0 18¼	to 0 18½		4.42	to 4.47
Black sheets, Japanese specifications.	13 15			66.68	
Ship plates	7 12½	to 8 0		1.65	to 1.73
Roller plates	10 10	to 11 0		2.27	to 2.38
Tees	8 2½	to 8 12½		1.75	to 1.87
Channels	7 7½	to 7 17½		1.60	to 1.70
Beams	7 2½	to 7 12½		1.54	to 1.65
Round bars, ¾ to 3 in.	7 12½	to 8 2½		1.65	to 1.75
Steel hoops	10 10	to 11 0		2.28	to 2.39
Black sheets, 24 gage	10 5			2.22	
Galv. sheets, 24 gage	13 15	to 14 0		2.98	to 3.03
Cold rolled steel strip, 20 gage, nom.	14 0			3.03	

*Export price, 6d. (12c.) per ton higher.

†Ex-ship, Tees, nominal.

Continental Prices, All F.O.B. Channel Ports (Per Metric Ton)

Foundry pig iron: (a)				
Belgium	£2 19s.	to £3 0s.	\$14.31	to \$14.55
France	2 19	to 3 0	14.31	to 14.55
Luxemburg	2 19	to 3 0	14.31	to 14.55
Basic pig iron:				
Belgium	2 19	to 3 0	14.31	to 14.55
France	2 19	to 3 0	14.31	to 14.55
Luxemburg	2 19	to 3 0	14.31	to 14.55
Coke	0 18		4.37	
Billets:				
Belgium	4 5		20.61	
France	4 5		20.61	
Merchant bars:				C. per Lb.
Belgium	4 12½		1.02	
France	4 12½		1.02	
Luxemburg	4 12½		1.02	
Joists (beams):				
Belgium	4 11½		1.01	
France	4 11½		1.01	
Luxemburg	4 11½		1.01	
Angles:				
Belgium	4 13		1.02	
½-in. plates:				
Belgium (a)	6 5		1.37	
Germany (a)	6 5		1.37	
¾-in. ship plates:				
Belgium	5 19		1.31	
Luxemburg	5 19		1.31	
Sheets, heavy:				
Belgium	6 1		1.33	
Germany	6 1		1.33	

(a) Nominal.

sible so long as Great Britain is not a member of the international entente. In the inland market a quota of 30,000 tons of phosphoric foundry iron has been set aside for foundrymen, and the price is unchanged. Effective Aug. 1, the price of hematite was reduced by 30 fr. per ton, as a result of British competition. A total of 30,000 tons has been allotted to the domestic market for August, with a tentative allotment of 20,000 tons for September and 10,000 tons for October delivery.

Semi-Finished Material.—Exports of billets and blooms are small, and prices are showing weakness. Although German producers agreed to reduce their export tonnage for the third quarter in return for a larger domestic quota in the International Steel Cartel, German competition is reported and sales to British consumers are being made with great difficulty. Billets range from £4 5s. to £4 6s. (\$20.61 to \$20.85) per ton and blooms from £3 18s. 6d. to £3 19s. (\$19.03 to \$19.15) per ton, f.o.b. Antwerp.

Finished Material.—Export quotations are showing a tendency to decline in the face of keen international competition, but the domestic market has been slightly more active in the past week, consumers apparently being in need of stocks. Beams are quoted at £4 10s. to £4 11s. per metric ton (0.99c. to 1c. per lb.) and bars at £4 12s. 6d. to £4 13s. per ton (1.01c. to 1.02c. per lb.) f.o.b. Antwerp. On sheets, the heavy gages range from £5 19s. 6d. to £6 per ton (1.31c. to 1.32c. per lb.) f.o.b. Antwerp. Demand for hoops has declined, and in the domestic market producers have reduced prices by about 150 fr. per ton.

CHINESE MARKET DEPRESSED

Shanghai Trade Limited to Small Lots—Improvement Expected with Success of Southern Armies

SHANGHAI, CHINA, July 5.—Throughout the first half of this year the metal trade has been quiet and featureless. Much of the inactivity was the result of reduced imports following the political upheaval and the attendant lack of confidence in the future. The reduction of imports was concomitant with a decline in demand from the interior cities, such as Hankow, Newchwang, Ichang and Tientsin.

Recently the Shanghai market has been depressed. A few orders for black sheets, 6 ft. long by 24 in. wide, have been placed, but the total in the past month has not exceeded 3000 to 4000 bundles at £14 2s. 6d. to £15 (\$68.50 to \$72.75) per ton, c.i.f. Shanghai. Normal monthly contracting for black sheets will range up to a total of 10,000 bundles.

Orders have been placed for a few hundred tons of galvanized wire, Nos. 16 to 20 gage, with prices varying from £16 to £17 (\$77.60 to \$82.45) per ton, c.i.f. Between 2000 and 3000 kegs of wire nails have been purchased at 11s. 3d. to 11s. 6d. (\$2.72 to \$2.78) per keg. A small tonnage of steel plate business has been placed at about £11 16s. (\$57.22) per ton, c.i.f., but since these purchases prices have declined to about £11 9s. (\$55.53) per ton. Sheets of 1/16 and 3/32 in. in thickness have been closed at from £8 10s. to £8 15s. (\$41.20 to \$42.43) c.i.f., but the total of such business is not in excess of 200 tons.

Chinese merchants believe that prices on the New York and London metal exchanges are tending toward lower levels and consequently are little interested in buying. Tin plate is about the only product that has shown any activity.

Among merchants in Shanghai it is believed that business will remain unsatisfactory until the Southern armies have been successful in their campaign in the North. If Peking is captured, dealers look for a revival of demand from that city and from Tientsin, Chefoo and Newchwang.

There has been some small business in waste and second-hand materials. Mild steel bar crops, ¼ to ½ in., round and square, have been sold by local German companies at £5 18s. 6d. (\$28.73) per ton to the extent of 200 or 300 tons. In plate cuttings the demand has declined, as dealers have been concentrating on the

purchase of bar crops. A few plate cuttings have been sold occasionally at from £5 15s. to £5 16s. (\$27.88 to \$28.12) per ton by German companies.

Many metal dealers have faced serious financial losses. Last year in September and October, as a result of confirmation of the report that the International Steel Cartel had been formed, Chinese merchants bought heavily of various products. Soon after this, the market dropped and these dealers were faced with heavy losses. As in most cases they were financially strong, they honored their commitments, but when the market had declined about 5s. per ton, they withheld further purchases in expectation of a further decline.

In former years, despite civil wars, dealers were able to move cargoes and would sell on one to one and a half months' credit to interior buyers. At present, however, dealers decline to extend credit and insist upon cash payment, the money to be remitted to Shanghai prior to shipment.

RUSSIAN OUTPUT LOWER

Steel Industry Handicapped by Investments in Unfinished Improvements—New Mergers

MOSCOW, RUSSIA, July 25.—Output of iron and steel in the past three months has been slightly reduced, probably as a result of a movement of temporary employees to the country for agricultural work. From October, 1926, to June, 1927, production of pig iron totaled 2,212,700 metric tons, steel ingot output was 2,642,500 tons, and production of rolled products was 2,023,100 tons. These totals were only slightly less than those for the entire business year from October, 1925, to October, 1926.

Output of coal and coke has shown a slight decline recently, but the total production of industrial products in the past nine months is reported as 20.6 per cent more than in the corresponding period of 1925 to 1926. At present domestic business is not satisfactory. The number of registered unemployed increased in the first half of the current business year from 989,000 to 1,295,000.

Development of the iron and steel industry has been somewhat retarded by lack of capital, resulting largely from the heavy investments that have been made in extensions and improvements which have not yet been completed. The recent movement urging reduction of prices has met with some success, but costs of production in most branches of the iron and steel industry have shown but little decline and in some instances are higher.

There have been complaints regarding the quality of products produced by the State engineering companies, particularly by the electrical corporation. At a recent meeting of the directors of the South Russian Steel Corporation at Charkow there was complaint that, as much of the plant is about 40 years old, expenditures for repairs are increasing every year, leaving less capital available for improvements. The South Russian Steel Co. has begun the construction of new coke ovens in Kertch and Dnepropetrovsk.

The Supreme Council of Economy of the Government has prepared plans for a Central Russian Metal Corporation to include five plants of the present Malz combination. The Union Council of Economy has voted in favor of the creation of a Urals Mining & Metal Corporation with a capital of 35,000,000 rubles. This would embrace 49 existing operations, which have an annual output valued at about 123,000,000 rubles.

The American Steel Foundries, Chicago, for the quarter ended June 30, report consolidated net income of \$1,275,792, after depreciation, taxes and charges, equal after preferred dividends to \$1.24 a share earned on 902,745 shares of no par common stock. This compares with \$1.25 a common share in the preceding three months and \$1.58 a share in the second quarter of last year. For the six months ended June 30, net income was \$2,561,240, after all charges, equal to \$2.49 a common share as compared with \$2.89 a common share in the corresponding period of 1926.

EXPORT TIN PLATE ACTIVE

Japanese Oil Company and Argentine Government Ask for Small Tonnages

NEW YORK, Aug. 9.—Export business continues small, with very little inquiry from the Far East and only the usual carload lots of galvanized sheets and other products from South America, Cuba and Porto Rico. The outstanding activity at present is in tin plate. The Kioto Oil Co. in Japan has opened bids on about 14,000 base boxes of oil can tin plate, and the Argentine Government Oil Fields, 165 Broadway, New York, opened bids Aug. 8 on about 14,000 base boxes of oil can sizes of tin plate.

Inquiry from Japan for light-gage black sheets has almost ceased, and most of this business is at present being placed with British mills, which are several dollars a ton lower in their quotations.

Importers of European steel for the American market report little activity. Buyers are not inclined to purchase for delivery from the mill, and the little buying that is current is confined to small lots of a few beams or shapes taken from the dock on arrival or from stocks in the hands of the importers. One importer recently sold a small lot of German wire rods at slightly less than the American delivered price.

Czechoslovakia to Permit Free Imports of Machinery

HAMBURG, GERMANY, July 23.—As a result of a recent order of the Czechoslovakian Government, there may be a good future market for foreign machinery in Czechoslovakia. Under the order all machinery which is not produced in the country or is made only in

minor quantities, or is sold at prohibitive prices, may be imported duty free. Import duties on such products will be refunded on machines received after May 1 of this year. The order requires that the importer of foreign machinery prove that the machines are not made in Czechoslovakia or are being sold at prohibitive prices, or that the domestic product does not give the required results.

American Engineers to Reorganize Russian Steel Plants

HAMBURG, GERMANY, July 23.—At its recent annual meeting the South Russian Steel Corporation reported unsatisfactory conditions in the Russian iron and steel industry. A contract has been signed with the Freyn Engineering Co., Chicago, effective for five years, under which consulting engineers will be sent to Russia to aid in reorganizing the steel industry.

It is pointed out that the steel industry needs capital. Of the total capital which was to be supplied by the Government only about 60 per cent has been actually paid in. At present about 11 per cent of the total expenditures of the industry is for repairs and only about 1.5 per cent for new equipment. About 50 per cent of the cost of pig iron and semi-finished material is wages.

There is a great shortage of engineers and skilled workers, while there are from two to three times as many unskilled workmen as in 1913. It is further complained that the ore and coke are of poor quality and that the scrap which the works are compelled to accept from other Government-owned projects is badly mixed and entirely unsatisfactory. It is said that if imports were permitted steel could be bought from other European countries at about 40 per cent of the prices quoted in Russia.

COMING MEETINGS

August

Ohio-Cleveland Industrial Exposition. Aug. 6 to 28. Public Auditorium, Cleveland. W. R. Boyd, Hollenden Hotel, Cleveland, chairman.

Ohio State Foundrymen's Association. Aug. 19 to 20. Annual convention, Cedar Point, Ohio. Arthur J. Tuscany, 5713 Euclid Avenue, Cleveland, secretary-manager.

Empire Mining and Metallurgical Congress. Aug. 22 to Sept. 20. Second Empire congress, meetings held at various places in Canada. R. O. Wheatley, 627 Drummond Building, Montreal, associate secretary.

American Society of Mechanical Engineers. Aug. 29 to 31. Regional meeting, Seattle. Calvin W. Rice, 29 West Thirty-ninth Street, New York, secretary.

Canadian Steel and Power Show. Aug. 31 to Sept. 2. Exposition and technical sessions, University of Toronto Arena, Toronto. C. Bradshaw, 153 University Avenue, Toronto, general chairman.

September

International Foundry Exhibition and Congress. Sept. 1 to 21. Exhibition at Parc des Expositions, Paris. Comité d'Organization, 8 Rue de la Victoire, Paris, France.

American Electrochemical Society. Sept. 4 to 20. Fall meeting, Northwestern trip starting from Chicago. Colin G. Fink, Columbia University, New York, secretary.

New Haven Machine Tool Exhibition. Sept. 6 to 9. Seventh annual exhibit, Mason Laboratory, Yale University, New Haven, Conn. Harry R. Westcott, 400 Temple Street, New Haven, Conn., chairman exhibition committee.

International Congress for Testing Materials. Sept. 12 to 17. Amsterdam, Holland.

American Refractories Institute. Sept. 15. Fall meeting, Clifton Hotel, Niagara Falls, Canada. Dorothy A. Texter, 2202 Oliver Building, Pittsburgh, secretary.

Concrete Reinforcing Steel Institute. Sept. 19 to 21. Semi-annual meeting, Aviation Country Club, 20 miles from Detroit. M. A. Beeman, Tribune Tower, Chicago, secretary.

American Welding Society. Sept. 19 to 23. Fall meeting, Book Cadillac Hotel, Detroit. M. M. Kelly, 33 West Thirty-ninth Street, New York, secretary.

National Machine Tool Builders' Association. Sept. 19 to 24. First national machine tool builders' exposition, Public Auditorium, Cleveland. E. F. DuBrul, 817 Provident Bank Building, Cincinnati, manager.

American Society for Steel Treating. Sept. 19 to 24. National steel and machine tool exposition at Convention Hall, technical sessions at Statler Hotel, Detroit. W. H. Eisenman, 4600 Prospect Avenue, Cleveland, secretary.

American Institute of Mining and Metallurgical Engineers, Institute of Metals. Sept. 19 to 24. Annual meeting, Statler Hotel, Detroit. H. Foster Bain, 29 West Thirty-ninth Street, New York, secretary.

Society of Automotive Engineers. Sept. 19 to 22. Production meeting, Sept. 19 and 20, Hotel Winton, Cleveland; Sept. 21 and 22, Book Cadillac Hotel, Detroit. C. F. Clarkson, 29 West Thirty-ninth Street, New York, general manager.

National Association Ornamental Iron and Bronze Manufacturers. Sept. 20 to 22. Annual meeting, West Baden, Ind. A. L. Graham, 195 Platt Street, Rochester, N. Y., secretary.

Iron and Steel Institute. Sept. 20 to 23. Annual autumn meeting, Royal Technical College, Glasgow, Scotland. G. C. Lloyd, 28 Victoria Street, London, S. W. 1, secretary.

Machinery Markets and News of the Works

\$500,000 EXPORT ORDER

Niles-Bement-Pond Co. Sells Equipment to Brazilian Railroad

August Business Shows Little if Any Improvement Over That of July—Some Buyers Awaiting Machine Tool Exposition

THE Sorocabana Railway, owned by the State of São Paulo, Brazil, has placed an order amounting to \$500,000 for complete equipment for its new repair shops at Sorocaba, Brazil. The order went to the Niles-Bement-Pond Co., New York, and is the largest single order received by that company since 1921, when it sold the equipment for shops for the Chilean State Railways. It probably ranks also as the largest single

machine tool order of any kind in a year or more.

Otherwise there has been nothing of outstanding interest in the machine tool market. Fresh inquiry is of small size, and there is a general lack of interest among users of tools. Some of the larger companies, which are usually receptive to new developments in production equipment, have stated their intention to await the National Machine Tool Exposition in Cleveland the week of Sept. 19 before deciding definitely on plans for equipment changes. Many new machines will be shown at Cleveland.

August buying is no better than that in July, which was the low point of the year for most of the machine tool builders. Action on such business as is definitely in prospect has in many cases been postponed because of vacation absences. Railroad buying is at a minimum, and the automobile companies are making very few purchases.

New York

NEW YORK, Aug. 9.

IN a week that has been one of the duller of the year in domestic buying of machine tools, an export order amounting to \$500,000, placed with the Niles-Bement-Pond Co., New York, ranks as the largest order of any kind taken by a machine-tool manufacturer in some time. The order was placed by the Sorocabana Railway of Brazil for equipment for its new repair shops at Sorocaba, Sao Paulo, Brazil. The new shops, which have been completed, are about 30 miles from the city of Sao Paulo. The largest previous order of the kind taken by the Niles-Bement-Pond Co. was that placed in 1921 by the Chilean State Railways for repair shops at San Bernardo, near Santiago, Chile. The Sorocaba shops will be the largest in Brazil, and the buildings and equipment will be the most modern in South America.

Buying of machine tools in this district has dropped away almost to nothing. A few orders have been placed, but there is a general lack of interest among users of tools. In some instances companies which are usually receptive to new developments in production equipment have stated their intention to await the National Machine Tool Exposition to be held in Cleveland the week of Sept. 19 before deciding on plans for equipment changes.

The Mergenthaler Linotype Co., 29 Ryerson Street, Brooklyn, manufacturer of linotype machines and parts, has awarded a general contract to the Industrial Engineering Co., 50 Church Street, New York, for an eight-story addition, 30 x 82 ft., reported to cost in excess of \$350,000, with equipment. Herman Fougner, company address, is architect; William H. Dusenbury, 1841 Broadway, New York, is mechanical engineer.

The International Combustion Engineering Corporation, 200 Madison Avenue, New York, has perfected plans for the organization of a new subsidiary under the name of the Dry Quenching Equipment Corporation, to take over, manufacture and develop a system of dry-quenching coke, patents and rights for which have been secured from Sulzer Brothers, Winterthur, Switzerland. Walter Sennhauser, heretofore connected with the last noted company, will take up a residence in this country to act as chief engineer for the new organization. George E. Learnard, president of the parent company, will be chairman of the board of the subsidiary; H. D. Savage will be president; and George H. Hansel, treasurer.

Grossman Brothers & Rosenbaum, 82 Willow Avenue, New York, operating a general iron works, recently acquired by new interests, have acquired property at Leggett and Oak Point Avenues, Truxton and Du Pont Streets, 200 x 375 ft., adjoining a recent purchase of a square block of property, the entire comprising 57 building lots, and will use a portion of the site for the immediate construction of a new plant, reported to cost in excess of \$175,000, to be devoted largely to the production of steel stairs and kindred products.

Ovens, power equipment, conveying machinery and other mechanical equipment will be installed in the five-story baking plant, 77 x 100 ft., to be erected by the Atlantic Warehouses, Inc., a subsidiary of the Great Atlantic & Pacific Tea Co., Inc., 2308 Decatur Street, Brooklyn, on Decatur Street, near Myrtle Avenue, reported to cost in excess of \$300,000, with equipment.

The Erie Railroad Co., 50 Church Street, New York, has awarded a general contract to the Truscon Steel Co., 32 Union Square, New York, for a one-story machine shop, 40 x 60 ft., at Twelfth and Monmouth Streets, Jersey City, N. J.

The Tung-Sol Lamp Works, Inc., 95 Eighth Avenue, Newark, manufacturer of electric lamps, is perfecting plans for a new addition to its plant, reported to cost in excess of \$45,000, with equipment. Actual erection may be deferred for several months.

The Long Dock Co., foot of Pavonia Avenue, Jersey City, N. J., operating a dock and transfer plant, elevator, etc., has plans for a new addition at the foot of Tenth Street, consisting of two machinery buildings, two steel transfer bridges and other mechanical structures, estimated to cost \$350,000.

Huff Airplanes, Inc., Perth Amboy, N. J., recently incorporated with a capital of \$1,500,000, has concluded arrangements for purchase of about 50 acres of land on the Raritan River, near the Victory bridge, forming a portion of the former Pardee steel works, and will use it for a new plant for the manufacture of aircraft. Existing buildings will be remodeled and improved and new units erected for parts and assembling of monoplanes, flying boats, etc. The initial works, it is reported, once cost in excess of \$150,000. The new company is headed by Thomas H. Huff, president, formerly head of the Huff-Deland Co., Bristol, Pa., manufacturer of airplanes; Frank Dorsey, mayor of Perth Amboy, vice-president; Ira Crouse, head of I. R. Crouse, 197 Division Street, lumber, treasurer; and M. M. Cunningham, secretary. Morgan F. Larson, State senator, is chairman of the board.

The Belleville Sash & Door Co., 437 Cortlandt Street, Belleville, N. J., has had plans drawn for a new one-story millwork plant, 35 x 125 ft., at 729 Washington Avenue, estimated to cost close to \$27,000, with equipment.

The City Commission, Newark, N. J., has preliminary plans under way for a commercial airport at Port Newark, where a tract of 500 acres will be used at Haynes Avenue and

the new State Highway. The initial project is estimated to cost \$700,000, of which approximately \$450,000 will be expended for hangars, repair and reconditioning shops, oil buildings, other mechanical structures and airfield equipment. The ultimate plant is expected to cost more than \$3,500,000. James W. Costello, city engineer, City Hall, is in charge.

New England

Boston, Aug. 9.

AUGUST did not start off well in the machine-tool market. Quite a little new tool business that a week ago had all the earmarks of closing within a day or two failed to materialize. Prospective purchasers either suddenly lost interest or went away on vacation. Very few sales were made last week. The Pneumatic Drop Hammer Co., Boston, sold a 900-lb. hammer to an Indiana shop and a 200-lb. hammer to a Waterbury, Conn., shop. It has also installed three hammers in a Providence, R. I., plant and three more in a Bridgeport, Conn., shop. Joseph Beal Co. was awarded the metal working tools required for the Washington school, Norman Street, Boston, and the woodworking tools for the Edmund P. Tileston school, bids for which were opened about a month ago.

The American Electric Works, Phillipsdale, R. I., has started work on a one-story, 128 x 100 ft. machine shop.

Westerly, R. I., will shortly hold a town meeting for the purpose of appropriating money for a junior high and industrial school. T. Perry is chairman of committee on plans.

The American Steel & Wire Co., Worcester, Mass., will soon start work on a two-story, 152 x 60 ft. plant on Ballard Street.

A selection will be made Aug. 30 of an architect for the Hartford, Conn., new trade school to cost \$415,000. Part of the expense will be borne by the state. John A. Gleason, city clerk, is accepting plans.

C. Hammond & Son, 179 North Water Street, New Bedford, Mass., is preparing plans for the conversion of the city's old fire station on Penchast Street, into a repair shop. Metal working equipment will be required.

Damage by fire estimated at \$50,000 was sustained by the Stamford Rolling Mills Co., Springdale, Conn., last week. It will be necessary to rebuild the main plant and possibly new equipment will be required.

The Merrimack Foundry, Concord, N. H., has opened for business. For the present its product will largely be sash weights.

The H. B. Smith Co., Westfield, Mass., heaters, reports a marked revival in new orders. It has sufficient business to keep its foundries operating full the remainder of 1927.

The Getchel Foundry & Machine Works, Oakland, Me., has started up following a protracted shutdown.

The Moore Drop Forging Co., Springfield, Mass., is reported to have obtained a substantial order from the Ford Motor Co. for clutch and brake pedals. The company omitted the August dividend on its Class A shares. Nothing has been paid on its Class B shares since early 1926. The company's financial position is strong, however, despite the recent depression in the drop forging industry. As of June 30, last, it had current assets of \$1,521,291, while current liabilities were but \$157,744.

The Samuel J. Wilde Corporation, 60 State Street, Boston, has taken over the Victory plant, Squantum, Quincy, Mass., erected in 1917 and operated by the Bethlehem Shipbuilding Corporation, Ltd. Thomas Pitts, Baltimore, who laid out the Hog Island plant, has been consulted regarding the effective use by tenants of the shops and wharves. Freight and traffic officials of the Pennsylvania Railroad will inspect the plant this week.

The Rogers Paper Mfg. Co., South Manchester, Conn., manufacturer of press-board for electrical insulation service and kindred products, is disposing of a stock issue to total \$460,000, a portion of the fund to be used for expansion.

The Arrow Electric Co., Hartford, Conn., manufacturer of electric switches and kindred electrical products, will add a story to its new factory on Hawthorne Street, making a two-story structure, 106 x 114 ft. Contract for the new extension has been let to A. F. Peaslee, 15 Lewis Street.

The Fafnir Bearing Co., New Britain, Conn., manufacturer of ball bearings, etc., is planning to develop a new department at its plant for the production of a ball bearing spring shackle for automobile service, an invention of Elijah H. Cooper, chairman of the board. The new division is scheduled to begin quantity production in the near future. Maurice Stanley is president.

The New England Mfg. Co., South Brewer, Me., recently formed with a capital of \$1,000,000, to manufacture special automobile headlights and kindred products, is arranging for the operation of its initial plant at 494 South Main Street, South Brewer. Alfred A. St. John, inventor of the new headlight, will be one of the heads of the company.

The White Motor Co., East Seventy-ninth Street, Cleveland, manufacturer of motor trucks, has asked bids on general contract on revised plans for a one-story factory branch, service and repair building, 140 x 150 ft., on Maple Street, Hartford, Conn., reported to cost in excess of \$100,000, with equipment.

The Stamford Rolling Mills Co., Springdale, near Stamford, Conn., manufacturer of brass sheets and other rolled brass specialties, is considering the early rebuilding of the portion of its plant destroyed by fire, Aug. 2, with loss reported at close to \$50,000, including equipment.

The City Council, Central Falls, R. I., has awarded a general contract to the Humes Construction Co., Pawtucket, R. I., for a one-story municipal garage and service building, with machine repair shop, for automobiles and trucks of the department of public works.

The Johns-Manville Co., Madison Avenue and Forty-first Street, New York, is arranging for the early operation of a new mill at Nashua, N. H., for the production of asbestos shingles and kindred products.

The Back Bay Hotels Garage, Inc., 260 Tremont Street, Boston, has revised plans in progress for a new three-story service, repair and garage building at Columbus Avenue and Dartmouth Street, estimated to cost in excess of \$400,000, with equipment. G. N. Meserve, 260 Tremont Street, is architect.

J. F. Foster, 294 Washington Street, Boston, machinery dealer, has been making inquiries for a number of wood-working tools, including automatic sanding machine, turning machine for the production of dowel pins, etc.

The Hartford Belting Co., 15 Lewis Street, Hartford, Conn., mechanical belting, now using the output of the Jewell Belting Co., Hartford, is said to be planning the early operation of a plant at Norwich, Conn., as soon as the Jewell company liquidation, now in progress, is carried out. Charles L. Tolles is president.

The National Biscuit Co., 85 Ninth Avenue, New York, has filed plans for a one-story service, repair and garage building, 150 x 200 ft., at Albany and Pacific Streets, Boston, for company cars, reported to cost close to \$100,000, with equipment.

Philadelphia

PHILADELPHIA, Aug. 8.

THE Paramount Electric Supply & Fixture Co., 250 Market Street, Philadelphia, has purchased the four-story building at 330 Arch Street, for a new works.

The Motor Parts Co., Philadelphia, recently formed under State laws with capital of \$225,000, will take over and expand the company of the same name with plant at Fifteenth and Mount Vernon Streets. F. W. Wilkening is treasurer of the new organization.

The Lehigh & New England Railroad Co., 437 Chestnut Street, Philadelphia, has approved plans for shop and yard improvements at Tadmor, near Bath, Pa., consisting of a new engine house with repair facilities, coaling station, oil storage and distributing plant, and other structures, reported to cost about \$350,000, with equipment.

The F. J. Stokes Machine Co., Tabor Road, Philadelphia, manufacturer of machinery and parts, is asking bids on general contract until Aug. 15, for a one-story building, 47 x 90 ft. Heacock & Hokanson, 1211 Chestnut Street, are architects.

The Board of Education, Pensauken Township, Merchantville, N. J., is asking bids on general contract until Aug. 22, for a new vocational school in Pensauken Township, reported to cost in excess of \$125,000, with equipment. Lackey & Hettie, Philadelphia, are architects.

The John Warren Watson Co., Philadelphia, has been organized under State laws with capital of \$250,000, to take over and expand the company of same name, manufacturer of automobile shock absorbers, with plant at Twenty-fourth and Locust Streets. R. A. Watson is one of the heads of the new organization.

The Central Railroad of New Jersey, 143 Liberty Street, New York, will install an electric-operated rail controller system at its yards at Allentown, Pa., for handling cars without brakemen; three towers will be built in connection with the project, which it is reported, will cost in excess of \$80,000. John Mahoney is yard master at Allentown.

The Muhlenberg Township School District, Muhlenberg, Reading, Pa., is said to be planning the installation of a manual training department in a proposed two-story high school, for which bids are being asked on general contract until Aug. 28, reported to cost in excess of \$175,000. Richer & Eiler, 147 North Fifth Street, Reading, are architects.

The Crane Market

BUSINESS is quiet in both overhead and locomotive cranes with only a small volume of inquiry under consideration and purchasing limited to occasional orders that have been pending for some time. In the overhead field about the only outstanding prospective purchase is the list of nine 5-ton cranes for the General Electric Co., Schenectady, N. Y. Few sales of locomotive cranes are reported.

The Provident Mutual Life Insurance Co., 401 Chestnut Street, Philadelphia, has awarded a general contract to the Turner Construction Co., 1713 Sansom Street, for a new power house, reported to cost in excess of \$65,000, with equipment.

The V. H. Steckel Motors Co., 302 South West Street, Allentown, Pa., has completed plans for a one-story service, repair and garage building at Seventh and Gordon Streets, estimated to cost \$100,000, with equipment. Jacoby & Everett, Commonwealth Building, are architects. V. H. Steckel is head.

The William L. Remppis Co., Chestnut Street, Reading, Pa., manufacturer of ornamental iron products, wrought iron, etc., has revised plans under way for a new one-story addition, 60 x 120 ft., to replace a structure destroyed by fire a number of weeks ago. W. Macy Stanton, 1524 Chestnut Street, Philadelphia, is architect.

The Board of Trustees, Pennsylvania State College, State College, Pa., has authorized plans for a new main engineering building at the institution, with equipment for mechanical and affiliated branches of study, estimated to cost \$300,000.

The David Lupton's Sons Co., Allegheny Avenue and Tulip Street, Philadelphia, manufacturer of steel sash, etc., has called a special meeting of stockholders on Sept. 27, to approve an increase in capital from \$3,500,000 to \$5,000,000, and 300,000 shares of stock, no par value; also, for an increase in indebtedness from nothing to \$5,500,000, a portion of the fund to be used for expansion. David P. Forstner is secretary.

The Valley Iron & Steel Co., Inc., Waidelich Building, Allentown, Pa., has been formed to conduct a general brokerage and yard business in iron and steel scrap, and will maintain yards at Allentown and Reading, Pa. Particular attention will be given shipments on rejected cars at the Bethlehem plant of the Bethlehem Steel Co. A department for the buying and selling of structural steel, relaying rails, bars, billets, pipe, etc., will soon be established.

Milwaukee

MILWAUKEE, Aug. 8.

ABSENCE of volume buying by the automotive industries continues to keep machine-tool trade within narrow bounds. Inquiry is light and most orders call for but one or two items. General industrial demand predominates, the railroads being only a small factor. The condition of foundry and machine shop business is undergoing improvement as fall approaches and the tool industry is confident of a revival in demand which will go somewhat farther than the replacements that now comprise the major share of trade.

The Blackhawk Mfg. Co., 148 Broadway, Milwaukee, manufacturer of wrench and tool sets, grinders, etc., has acquired the Hydraulic Tool Co., Los Angeles, manufacturing hydraulic oil-power jacks, and is consolidating the operation with the Milwaukee plant. Some miscellaneous equipment is being purchased to supplement the tooling transferred from Los Angeles. E. G. Bott is vice-president and treasurer of the Blackhawk company.

The Milwaukee Turbine Sewer Machine Co., 195 Eleventh Street, Milwaukee, manufacturer of special machines for cleaning subterranean conduits of all kinds, has placed contracts for the erection of the first unit of a new factory and office building on a new site at State Street and Hawley Road. It will be 50 x 150 ft., part two-story and basement and provide three to four times the capacity of the present shop. Fred W. Fuchs is secretary and treasurer.

The Common Council of Spooner, Wis., contemplates the construction and equipment of a new municipal hydroelectric generating plant costing about \$65,000 on a new site on the Yellow River six miles below its present plant. Preliminary plans and estimates are now being made. George E. Sage is city clerk.

Among recent purchases are:

E. L. Phillips & Co., 50 Church Street, New York, a 100-ton, 4-motor overhead crane with 15-ton auxiliary for the Long Island Lighting Co., from the Cleveland Crane & Engineering Co.

South Brooklyn Marble Co., Brooklyn, N. Y., a 5-ton hand power crane from an unnamed builder.

The Norwood Engineering Co., Florence, Mass., is low bidder at \$46,750 for the filter equipment of a proposed municipal filtration plant at Menasha, Wis. The low bidder on the construction of building, lines, etc., is the Devereaux-Olson Construction Co., Minneapolis, at \$56,420. Bids were opened Aug. 2. The capacity is to be 2,000,000 gals. The project is in charge of the A. E. McMahon Engineering Co., Menasha.

The Milwaukee Electric Switchboard Co., Milwaukee, has been incorporated with a capital stock of \$25,000 to manufacture and market control panels and other electrical specialties. The principals are Eric E. Hagedorn, Lawrence Conlan and Joseph F. Schoendorf, 353 National Avenue. Plans are being formed for production.

The Common Council of Wauwatosa, Wis., suburb of Milwaukee, has voted an additional fund of \$150,000 to make a total of \$250,000 available for the construction and equipment of the first unit of a new senior-junior high and vocational training school. The unit will contain manual training shops.

The Bayley Mfg. Co., 732 Greenbush Street, Milwaukee, has changed its corporate title to Bayley Blower Corporation. It is one of the oldest and largest manufacturers of ventilating systems, fans, blowers, air conditioning apparatus, etc. The change is made to better identify the name with its product. Ownership and management remain unchanged.

Chicago

CHICAGO, Aug. 8.

PRACTICALLY no change has taken place in the machine-tool market. Fresh inquiry is widely scattered and of small size and new buying is as inactive as at any time this year. No complaint is heard on deliveries, and prices are steady. Collections are good but some loss is being incurred because of failures of several small shops that recently added to their equipment. The list of the Chicago, St. Paul, Minneapolis & Omaha Railway is active. The Rock Island has purchased several lathes and is asking for prices on a small drill. A musical instrument manufacturer in Chicago bought a 16-in. lathe and additional items are being placed by a tractor manufacturer in Iowa. It is reported that the Mississippi Valley Structural Steel Co. has purchased punches and shears for its new shop at Melrose Park, Ill.

The Wright Mfg. Co., Lebanon, Ohio, maker of high speed hoists, steel trolleys, screw hoists and differential hoists, has removed its Chicago office to 548 West Washington Boulevard.

The Supreme Foundry Co., Scheel Street, Belleville, Ill., suffered loss by fire on July 26.

Fire recently partly destroyed a section of the warehouse of Olney J. Dean & Co., Cicero, Ill., dealers in concrete reinforcing bars.

The Cyclone Fence Co., Waukegan, Ill., has taken out a building permit for a plant addition to cost \$18,000.

The R. G. Haskins Co., Chicago, manufacturer of steel shafting, has purchased from the Regan Construction Co. a two-story industrial building now being erected on a 74 x 125-ft. lot at 4630 Fulton Street.

The Commonwealth Edison Co., 72 West Adams Street, Chicago, will build a transformer platform to cost \$35,000. T. G. Thomas, 72 West Adams Street, architect.

Page & Ludwick, 14 East Jackson Boulevard, Chicago, have terminated their partnership. The business is now conducted at the same address by the Page Sales Service, representing the Milwaukee Electric Crane & Mfg. Corporation, Thomas Flexible Coupling Co., Royer Foundry & Machine Co., the Magnetic Mfg. Co., and H. D. Conkey & Co.

The Supreme Foundry Co., Sycamore Street, Belleville, Ill., gray iron castings, etc., plans the rebuilding of the portion of its foundry destroyed by fire, July 26, with loss reported at close to \$14,000, including equipment.

The Chicago-Nash Co., 2000 South Michigan Avenue, Chicago, representative for the Nash automobile, is considering the building of a new three-story service, repair and garage building at Prairie Avenue and Twenty-fourth Street, reported to cost close to \$100,000, with equipment.

The Great Lakes Utilities Corporation, Chicago, is disposing of a bond issue of \$1,275,000, a portion of the proceeds to be used for extensions and improvements in power plants and system. R. H. Burdick is president.

The Northern Pacific Railway Co., Railroad Building, St. Paul, Minn., is perfecting plans for the early erection of a steam-operated electric generating plant at Mandan, N. D., estimated to cost close to \$100,000, with equipment. The company is reported to be considering proposed steel car shops at Laurel, Mont., initially projected several months ago and since held in abeyance, consisting of a main one-story unit, 100 x 250 ft., to cost in excess of \$250,000, with equipment. O. M. Rognan is company architect.

The Willard Storage Battery Co., St. Clair Avenue and 131st Street, Cleveland, manufacturer of storage batteries for automotive service, has awarded a general contract to W. A. Klinger, Warnock Building, Sioux City, Iowa, for a new factory branch and distributing plant, 75 x 150 ft., at Seventh and Water Streets, Sioux City, to cost approximately \$65,000, with equipment.

The Turner Simplicity Engine Co., Oskaloosa, Iowa, plans the early rebuilding of the portion of its plant destroyed by fire, Aug. 1, with loss reported at close to \$80,000, with machinery.

The Southern Colorado Power Co., Colorado Building, Pueblo, Colo., has tentative plans for a new hydroelectric generating plant on the Arkansas River, in the Royal Gorge, near Canon City, Colo., to cost in excess of \$400,000, with power dam and transmission system. Application for permission has been made to the Federal Power Commission. W. N. Clark is manager.

The Public Utilities Consolidated Corporation, Minneapolis, Minn., operated by the W. B. Forshay Co., same city, has concluded negotiations for the purchase of the plant and property of the Canyon Light & Power Co., Burke, Idaho, the Mullan Light Co., Mullan, Idaho, and for the acquisition of the capital stock of the Northwest Light & Water Co., Wallace, Idaho, and will consolidate with its organization. Plans are under way for expansion in the new districts, with construction of transmission lines.

Bids will soon be asked by the City Water Board, St. Paul, Minn., for a steel tower and tank for the water supply system, tank to have a capacity of 200,000 gals., and tower to be 110 ft. high. It is estimated to cost \$60,000. J. W. Kelsey is superintendent of the water board.

The Chicago Automatic Conveyor Co., 37 West Van Buren Street, Chicago, has concluded arrangements for the purchase of the one-story factory, 150 x 200 ft., on Fifty-first Avenue, near Nineteenth Street, for a consideration stated at \$75,000. It will be improved and equipped for a new plant. It is understood that the present works at Hale and West 113th Streets, will be removed to the new location, and increased capacity arranged.

The Gates Rubber Co., 999 South Broadway, Denver, Colo., will proceed with the erection of a new power plant, estimated to cost more than \$125,000, with equipment. Wood & Weber, Midland Savings Building, are consulting engineers.

The Inland Wire & Cable Co., Chicago, has been formed with a capital of \$2,000,000, to take over and consolidate the Illinois Wire & Cable Co., 111 West Washington Street, and the Chicago Insulated Wire & Mfg. Co., 53 West Jackson Boulevard, with main plant at Sycamore, Ill. It is understood that both plants will be continued in service, as heretofore, and that negotiations will soon be closed for the acquisition of a third company in this same line. Expansion in output will be developed. George E. Dutton, heretofore president of the Illinois Wire company, will be chairman of the board of the new organization, and A. B. Gochenor, previously president of the Chicago Insulated company, president.

The Chicago office of the Climax Engineering Co., Clinton, Iowa, has been removed to 1608 Harris Trust Building, 111 West Monroe Street. F. E. Blanchard is in charge.

Cleveland

CLEVELAND, Aug. 8.

CONTRACT has been let by the General Tire & Rubber Co., East Market Street, Akron, Ohio, to Clemmer & Johnson, 470 East Market Street, for a new four-story and three one-story additions, reported to cost about \$250,000, with machinery. William O'Neill is president.

The Cleveland Twist Drill Co., 1242 East Forty-ninth

Street, Cleveland, has filed plans for a new one-story addition at 4717 St. Clair Avenue, 80 x 140 ft., reported to cost in excess of \$50,000, with equipment.

David Stauffer, Mount Gilead, Ohio, local representative for the Ford automobile, will install a machine shop and repair works in a proposed new two-story service and sales building, 42 x 135 ft., at South Cherry and North High Streets, reported to cost about \$70,000, with equipment.

The American Stamping Co., 978 East Sixty-fourth Street, Cleveland, has awarded a general contract to R. P. Adams, 975 Roanoke Road, for a one-story addition, 60 x 150 ft., on East Sixty-third Street. E. H. Krueger is secretary.

The Cleveland district office of the Durand Steel Locker Co., Chicago, has been removed from 12524 Euclid Avenue to the Euclid-Thirtieth Building. J. P. Walsh is in charge.

Pittsburgh

PITTSBURGH, Aug. 8.

SALES of machine-tools are few and only occasionally amount to much from a monetary standpoint, but the trade is encouraged by an increase in inquiries to look for better things when the vacation season is over.

The new plant of the Valley Mold & Iron Corporation, Hubbard, Ohio, is running steadily and converting the output of one Hubbard furnace, Youngstown Sheet & Tube Co. into ingot molds and stools. The new office building is nearing completion.

The Sharon Steel Hoop Co., Sharon, Pa., has acquired property adjoining its plant for proposed expansion and will have plans drawn for a new one-story unit in the near future. It will be used primarily for rolling mill service.

The plant and property of the Railway & Industrial Engineering Co., Greensburg, Pa., manufacturer of electric switching equipment, etc., a subsidiary of the American Brown Boveri Electric Corporation, 165 Broadway, New York, has been acquired from the last-noted organization by B. W. Kerr, Greensburg, and associates. Mr. Kerr was president of the company when it was purchased in February, 1926, by the American Brown Boveri organization, and in again assuming control will occupy a like position. Production will be continued as heretofore.

The Board of Education, Glassport, Pa., is considering the installation of manual training equipment in a proposed two-story high school at Third Street and Ohio Avenue, estimated to cost close to \$200,000. H. C. Clopper, Century Building, Pittsburgh, is architect.

The City Council, Fairmont, W. Va., plans the installation of pumping and power equipment in connection with proposed extensions and improvements in the municipal waterworks and sewage systems, for which a fund of \$300,000, has been arranged. Bids will soon be asked.

The Vesuvius Crucible Co., Swissvale, Pa., manufacturer of graphite crucibles, etc., is considering the early rebuilding of the portion of its plant destroyed by fire, Aug. 1, with loss reported at close to \$75,000, including equipment.

The Board of Education, Wellsburg, W. Va., plans the installation of manual training equipment in a new high school at Main and Fourteenth Streets, estimated to cost \$225,000, for which bids have been asked on a general contract. C. W. Bates, 77 Twelfth Street, Wheeling, W. Va., is architect.

The Nilco Lamp Co., St. Mary's, Pa., manufacturer of electric lamps, has deferred a call for bids on general contract for its proposed new two-story plant, estimated to cost about \$65,000, with equipment, but is expected to ask estimates before the close of the month. Charles A. Searing, Farmers' Bank Building, Pittsburgh, is engineer. R. W. Roloff is general manager.

The Westinghouse Air Brake Co., Wilmerding, Pa., has called a special meeting of stockholders on Aug. 17, to approve an increase in capital from \$50,000,000, to 4,000,000 shares of stock, no par value, a portion of the proceeds to be used for expansion. R. O. Yearick is secretary.

The Standard Plate Glass Co., First National Bank Building, Pittsburgh, has plans for a new four-story and basement plant, 40 x 154 ft., on Galveston Avenue, Northside, reported to cost in excess of \$100,000. Hunting, Davis & Dunnells, Century Building, are architects and engineers.

The Richmond Radiator Co., Uniontown, Pa., will devote a portion of its local plant to the production of a new tube pattern radiator, recently perfected, and will develop a large output. The company will also manufacture a special type gas boiler, rights of production of which recently were secured from the United Utilities & Engineering Corporation, Philadelphia. It is purposed to give over a portion of the plant to this specialty.

Buffalo

BUFFALO, Aug. 8.

PLANs have been completed by the New York Central Railroad Co., Buffalo, for a new one-story power plant at 301 Curtiss Street, estimated to cost close to \$150,000 with equipment.

The Board of Education, Canajoharie, N. Y., is considering the installation of manual training equipment in a proposed two-story high school on Main Street, estimated to cost \$250,000, for which bids will be asked on general contract in about a week. Kinne & Frank, 7 Hopper Street, Utica, N. Y., are architects.

Remington-Rand, Inc., Tonawanda, N. Y., comprising a recent merger of the Remington Typewriter Co., and the Rand-Kardex Co., is planning the early removal of its steel cabinet and filing equipment plant at Ilion, N. Y., comprising the former factory of the Library Bureau, included in the merger, to the works at Tonawanda, where expansion will be arranged to accommodate this branch of production; about 350 men will be given employment in the steel cabinet works at the new location. The space vacated at Ilion will be used for the manufacture of products which have a closer relation to typewriters and accounting machines, to be operated in conjunction with the plant of the Remington Typewriter Division at this same place; it is proposed to transfer existing plants of this character now operating in other cities, with facilities for expansion in present output. Benjamin L. Winchell is chairman of the board.

The City Council, Chautauqua, N. Y., plans the installation of a pumping plant in connection with a proposed filtration plant for the municipal waterworks. Pease, Greeley & Hansen, 6 North Michigan Avenue, Chicago, are engineers.

F. L. Carlisle & Co., Watertown, N. Y., operating public utility products, with main offices at 49 Wall Street, New York, is reported at the head of project to construct and operate a new plant at Oswego, N. Y., for the manufacture of insulating board, wallboard and kindred products, consisting of several units, with machine shop, electric substation, etc., reported to cost in excess of \$650,000 with machinery. E. E. Whitney, East Bridge Street, Oswego, is interested in the project.

The Rochester & Lake Ontario Water Co., Rochester, N. Y., has plans under way for extensions and improvements in its plant and system, including the installation of pumping machinery and power equipment, 12-in. and 20-in. pipe lines, etc., estimated to cost close to \$1,000,000. The J. G. White Engineering Corporation, 43 Exchange Place, New York, is engineer.

The City Council, Rochester, N. Y., is planning for expansion at the municipal airport, known as the Britton Field, to include the construction of a hangar to accommodate 10 airplanes, with repair and reconditioning facilities, etc., estimated to cost close to \$25,000. Martin P. O'Neill, mayor, is giving personal attention to the project.

Cincinnati

CINCINNATI, Aug. 8.

THE first week of August has brought a small increase in machine tool sales, but the total volume of incoming business is regarded as unsatisfactory. While inquiries have been better, the vacation season is responsible for the postponement of the placing of numerous orders until September. The most active buyers are small shops in the general industrial field. The Allis-Chalmers Mfg. Co., Milwaukee, has purchased a sidehead boring mill.

The Ross-Willoughby Co., Springfield, Ohio, manufacturer of machinery and supplies, is now located in its new headquarters at 269 West Spring Street.

Bids are being asked by the Eco-Thermal Stove Co., Lebanon, Ohio, manufacturer of gas ranges, etc., for a new two-story plant reported to cost about \$100,000, with equipment, to replace the portion of its factory recently destroyed by fire. S. S. Thomas is general manager.

The Brown-Craven Equipment Co., 706 Manning Street North, Chattanooga, Tenn., machinery dealer, has inquiries out for an overhead electric traveling crane, 50 to 80 ft. span, to handle a bucket of 2 cu. yd. capacity; also for a 50,000-gal. capacity steel tank and tower, latter to be not less than 50 ft. high; and for one jaw crusher, about 48 x 60 in.

The Knoxville Power Co., Knoxville, Tenn., with executive offices in the Oliver Building, Pittsburgh, operated by the Aluminum Co. of America, last noted address, has preliminary plans in preparation for a new hydroelectric generating plant on the Little Tennessee River, near the State line between Tennessee and North Carolina, with initial capacity

of about 80,000 hp. A power dam and transmission line will be built. The entire project is reported to cost more than \$900,000. James W. Rickey, 2400 Oliver Building, Pittsburgh, hydraulic engineer, is in charge.

Gulf States

BIRMINGHAM, Aug. 6.

OFFICIALS of the Pullman Car & Mfg. Corporation, 79 East Adams Street, Chicago, have organized a new subsidiary under the name of the New Orleans Car Wheel Co., Inc., with capital of \$500,000, to operate a plant at New Orleans, La., for the manufacture of wheels for railroad cars. Work is under way on an initial foundry unit, reported to cost more than \$200,000, with equipment, and scheduled to be ready for service in the fall. A. C. O'Neill, Jr., 1469 Henry Clay Avenue, New Orleans, is interested in the new organization.

The Southwestern Power & Light Co., Fort Worth, Tex., has arranged for a bond issue of \$3,000,000, a portion of the proceeds to be used for extensions and improvements in power plants and system. A. S. Grenier is president. The company is under the direction of the Electric Bond & Share Co., 71 Broadway, New York.

The Louisville & Nashville Railroad Co., Louisville, is said to be planning the construction of a new coal tippie at Mobile, Ala., for coal barge and other river craft service, estimated to cost \$75,000, with machinery.

The Water Department, Dallas, Tex., plans the construction of a new electric-operated pumping plant and water purification works at Bachman's Lake in connection with proposed extensions and betterments in the municipal waterworks, for which a fund of \$4,000,000 is being considered.

The New Orleans Public Service Co., New Orleans, La., is said to be planning an expansion and improvement program over a period of years, with total cost aggregating \$55,000,000. The work will include new power plants, extensions in present generating stations, substations, transmission lines, etc.

The Sewerage and Water Board of New Orleans, La., 526 Carondelet Street, is asking bids until Sept. 29, for electric machinery for the department. A. G. Moffat is secretary.

The Municipal Water & Light Co., Hanceville, Ala., is said to have plans under way for a new electric light and power plant, reported to cost about \$80,000, with equipment.

The State Board of Control, Austin, Tex., H. H. Harrington, chairman, is planning the early purchase of manual training equipment for the juvenile training school at Gatesville, Tex., including iron-working tools and machines, wood-working equipment, automobile shop equipment, forge and blacksmith shop tools and equipment.

The Knorpp Pipe Line Co., Amarillo, Tex., John K. Knorpp, president, has approved plans for the construction of a 24-in. pipe line from the Amarillo district to Kansas City, Mo., and vicinity, for natural gas transmission. It is reported to cost in excess of \$10,000,000, with booster stations, etc.

The Caddo Parish School Board, Shreveport, La., plans the installation of manual training equipment in a proposed new two-story junior high school near the State Fair grounds, reported to cost about \$350,000, for which bids will be asked on general contract in September. Edward F. Neild, City Bank Building, is architect.

The G. R. Mueller Co., Brown-Marx Building, Birmingham, Ala., machinery dealer, has inquiries out for a single roll crusher, about 18-in. diameter and 30-in. face, slugger tooth type.

The Wortham Independent School District, Wortham, Tex., contemplates the installation of manual training equipment in a proposed new high school, for which a fund of \$100,000 is being arranged. C. V. Reed is superintendent of schools.

The Venice Woodcraft Co., Venice, Fla., is considering the purchase of wood-working machinery for the production of turned wood products, including golf tees, spoons, etc. Howard D. Fiedlere is head.

The Central Power & Light Co., Frost Building, San Antonio, Tex., has concluded arrangements for the purchase of the electric light and power plant, and ice-manufacturing plant at Falfurrias, Tex., and plans extensions and improvements in this section, including installation of additional equipment and construction of new transmission lines from Kingsville, Tex., to Falfurrias and vicinity.

The Brazos Valley Irrigation Co., Sugarland, Tex., W. T. Eldridge, president, has made application to the State Water Board for permission to use water from the Brazos River, near Navasota, Tex., for a proposed hydroelectric power development. A transmission line will be built. Estimates of cost will soon be made.

The Wichita Pipe Line Co., Wichita Falls, Tex., has authorized the construction of a new 4-in. pipe line from its properties at Swastika Station to the South Bend district, Young County, for oil transmission, estimated to cost about \$130,000.

Robbins & Robbins, 801 Tchoupitoulas Street, New Orleans, have been appointed sales representatives in Louisiana and Mississippi for the Graver Corporation, East Chicago, Ind., manufacturer of water softeners, filters, tanks and steel plate equipment.

Detroit

DETROIT, Aug. 8.

THE Olds Motor Works, Lansing, Mich., division of the General Motors Corporation, is completing plans for new additions to its plant on a 75-acre tract of land adjoining the present factory, to be used for motor manufacture, assembling operations and other production. The extension will total about 290,000 sq. ft. of floor space, and is reported to cost close to \$3,000,000 with equipment. With the enlargement, the works will have a gross floor area of 1,688,092 sq. ft., including body-building unit. The company is reported to be arranging for the early production of an 8-cylinder car, continuing the 6-cylinder automobile, as heretofore.

The Screw Products Co., Jackson, Mich., has arranged for a lease of a portion of the former plant of the Cement Casket Co., Albion, Mich., and will operate a new works at this location. It is intended to begin production within a few weeks.

The Hoskins Mfg. Co., 4435 Lawton Avenue, Detroit, manufacturer of electric furnaces, etc., is completing plans for a new one- and two-story addition, 80 x 290 ft., reported to cost close to \$100,000 with equipment.

The Detroit Edison Co., 2000 Second Avenue, Detroit, has begun the construction of a new electric power substation at Ferndale, Mich., reported to cost \$275,000 with equipment.

The Briggs Mfg. Co., Mack Avenue, Detroit, manufacturer of automobile bodies, has completed the erection of two new plant units, one story and five stories, respectively, representing an investment of more than \$1,000,000, and will arrange for complete equipment to duplicate the output of its former plant on Harper Avenue destroyed by fire, which the new structures are designed to replace. Albert Kahn, Inc., Marquette Building, is architect and engineer.

The Wilson Foundry & Machine Co., Pontiac, Mich., has approved plans for enlargements in its plant, including the installation of additional equipment and replacements in present machinery; increased production will be arranged. The foundry has been closed temporarily to allow for the work. The company is affiliated with the Willys-Overland Co., Toledo, Ohio, and devotes the bulk of output to the production of automobile engines. D. R. Wilson is vice-president and general manager.

The City Council, Lansing, Mich., will carry out an expansion and improvement program at its municipal airport, including the construction of additional hangars, repair shops and other buildings. The Chamber of Commerce is interested in the project.

The Board of Education, Monroe, Mich., plans the installation of manual training equipment in its proposed new high school, estimated to cost \$750,000, for which bids are being asked on general contract until Aug. 25. H. H. Turner and V. E. Thebaud, Grand Rapids, Mich., are architects.

The Baker Furniture Co., Allegan, Mich., is perfecting plans for a new addition, and the installation of machinery in present wood-working units to develop a large increase in present output, reported to cost in excess of \$75,000. The expansion will be carried out at three existing factories.

The Industrial Heating Equipment Co., 6565 Russell Street, Detroit, has been formed to take over the assets of the Beeman Equipment Co., former builder of industrial furnaces, and of the Liquid Fuel Engineering Co., manufacturer of fuel oil burners. The new company will build and install industrial furnaces and industrial heating equipment, specializing in foundation type and conveying furnaces to burn either gas or oil. It is operating in the plant formerly occupied by the Emerson Motor Parts Co. and is not in the market for additional materials or equipment.

The W. J. McKee Machinery Co., Sixteenth and Pine Streets, Detroit, has been reorganized as a corporation, and will continue to act as agent or broker for manufacturers of machinery, tools and supplies. The company is open for additional lines for distribution in the Detroit district.

Indiana

INDIANAPOLIS, Aug. 8.

BIDS have been asked on general contract by the American Steel & Wire Co., Anderson, Ind., for a proposed one-story addition to its local plant, 350 x 350 ft., to be equipped primarily for the production of welded fabric steel wire, estimated to cost in excess of \$500,000 with machinery. Headquarters are at 208 South La Salle Street, Chicago.

The Board of Education, Evansville, Ind., contemplates the installation of manual training equipment in its proposed new Douglas high school at Lincoln and McCormack Avenues, estimated to cost \$300,000, for which plans will be drawn by Fowler & Karges, Furniture Building, architects.

The F. & N. Lawn Mower Co., Richmond, Ind., plans the early rebuilding of the portion of its plant destroyed by fire, Aug. 2, with loss reported at \$25,000 including equipment.

The Hare-Chevrolet Co., 540 East Washington Street, Indianapolis, local representative for the Chevrolet automobile, has leased a new two-story building, 50 x 200 ft., to be erected on East Washington Street, for a new service, repair and garage building. Frank Hare heads the company.

The Ross Gear & Tool Co., Lafayette, Ind., is withholding temporarily a call for bids on general contract for a proposed one-story addition, 66 x 68 ft., for which plans have been completed by Walter Scholer, Painters' & Decorators' Building, architect; bids will be received, when issued, at the last noted office. The extension will cost about \$24,000.

The City Council, Muncie, Ind., is considering the establishment of a municipal airport, with hangars, repair and reconditioning shops, oil storage buildings, etc., estimated to cost \$74,000. A fund in such amount is being arranged. John C. Hampton, mayor, is giving attention to the project.

Courtlandt Nicoll and Frank E. Smith, appointed receivers for the Servel Corporation, Evansville, Ind., manufacturer of electric and gas-operated refrigerating equipment, gasoline motors, motor truck bodies, etc., will continue operations at the local plant on the present basis. The subsidiary organization of the company, known as the Absorption Refrigerator Co., Newburgh, N. Y., will also be continued in regular production.

The Graham Glass Co., Evansville, Ind., manufacturer of bottles and other hollowware, has awarded a general contract to the Rust Engineering Co., 311 Ross Street, Pittsburgh, for a new one-story addition, 160 x 255 ft., to cost approximately \$350,000 with equipment. J. Muri Lents is president.

St. Louis

ST. LOUIS, Aug. 8.

CONTRACT has been let by the Fessler Mfg. Co., Moberly, Mo., manufacturer of tools and other mechanical equipment, to T. R. & J. E. Bell, Moberly, for a new one-story plant at Logan and Sturgeon Streets, reported to cost close to \$100,000 with machinery. John W. Fessler is president.

The Missouri Pacific Railway Co., Railway Exchange Building, St. Louis, will install a pumping plant, steel storage tank, pipe lines and other equipment in connection with a new water supply station and water-treating plant at Hermann, Mo.

The Santa Fe Railroad Co., 80 East Jackson Boulevard, Chicago, is said to be planning the construction of a new engine house with repair facilities at the Santa Fe lines and Thirty-sixth Street, Oklahoma City, Okla., to cost approximately \$100,000 with equipment.

The Arkansas Paper Roll Plug Co., Jacksonville, Ark., is considering the rebuilding of the portion of its mill recently destroyed by fire with loss reported at close to \$25,000 with machinery.

The Producers' Cotton Oil Co., Hobart, Okla., is planning the construction of a new cottonseed oil mill, six-press type, reported to cost approximately \$45,000 with equipment. George E. Neff is president.

The Utility Tool Co., 620 Tower Grove Avenue, St. Louis, contemplates the installation of additional equipment, including a 30-in. lathe, 18 ft. between centers.

The Board of Education, Wichita, Kan., plans the installation of manual training equipment in a proposed one-, two- and three-story high school at Thirteenth and Rochester Streets, estimated to cost about \$700,000, for which bids will be asked on general contract in the near future. Glenn H. Thomas, W. K. & H. Building, Wichita, is architect.

The Messmer Mfg. Co., 2700 South Seventh Street, St. Louis, manufacturer of brass and bronze castings, etc., has awarded a general contract to George Moeller, 3520 Itaska Street, for a new two-story foundry addition, estimated to cost about \$30,000 with equipment. Otto J. Krieg, Wainwright building, is architect.

The Universal Automobile Service Co., St. Louis, has awarded a general contract to the Mid-Continent Construction Co., Louderman Building, for a new five-story garage on local site, to cost in excess of \$450,000 with equipment. Proposed future additions are expected to make an ultimate investment of about twice the sum noted. Gill & Jackson, 705 Market Street, are architects.

The Ortleb Corporation, 1309 Pine Street, St. Louis, manufacturer of ink agitators and kindred specialties, has closed negotiations for the purchase of the building at 2513 Baldwin Street, and will remodel and equip for a new plant. The present works will be removed to the new location and additional equipment installed for considerable increase in present output. George Ortleb is head.

The Crane Co., 836 South Michigan Avenue, Chicago, has awarded a general contract to the Mann Co., Cotton Exchange Building, Oklahoma City, Okla., for its proposed two-story and basement factory branch and distributing plant, 80 x 270 ft., at Main and Lee Streets, Oklahoma City, estimated to cost \$150,000 with equipment. Layton, Hicks & Forsyth, Braniff Building, Oklahoma City, are supervising architects.

The St. Louis-San Francisco Railway Co., St. Louis, is reported planning the immediate erection of a new one-story truck repair and construction shop at Springfield, Mo., to cost in excess of \$50,000 with equipment.

South Atlantic States

BALTIMORE, Aug. 8.

THE Jefferson Power & Light Co., Jefferson, N. C., is said to have plans maturing for a new hydroelectric generating plant on the North Fork of the New River, near Jefferson, with transmission lines for service throughout this section, reported to cost in excess of \$175,000 with machinery.

The Common Council, Faith, S. C., plans the early rebuilding of the portion of the municipal electric light and power plant destroyed by fire, July 27, with installation of new equipment.

The Town Council, Wakefield, Va., is asking bids until Aug. 15, for equipment for a proposed municipal waterworks and sewage system, including pumping station, valves, etc., and one 60,000-gal. capacity hemispherical steel tank on 130-ft. tower.

R. P. Johnson, Wytheville, Va., machinery dealer, has inquiries out for rock-crushing machinery with capacity of about 300 tons per day, suitable for reducing sand rock to commercial sand; also for a single-drum hoisting engine, with drum of capacity to handle about 3500 ft. of $\frac{3}{8}$ -in. cable, with boiler and accessories complete.

Mees & Mees, Inc., Johnston Building, Charlotte, N. C., consulting engineer, has plans for a new power dam and hydroelectric power plant in the vicinity of Pineola, N. C., for Howard C. Marmon, Pineola, and associates, reported to cost close to \$100,000 with machinery and transmission line.

The Readybuilt Products Co., 2204 Frederick Avenue, Baltimore, manufacturer of fireplaces and kindred products, is arranging an increase in capital from 250 shares of stock, no par value, to \$100,000, a portion of the proceeds to be used for expansion.

The Guilford County Board of Education, Greensboro, N. C., is considering the installation of manual training equipment in its proposed new school to be erected at Proximity Station, near Greensboro, estimated to cost about \$250,000.

The Electric Public Utilities Co., Emmitsburg, Md., organized under Delaware laws, is perfecting plans for the purchase and consolidation of the Emmitsburg Electric Co.; Home Electric Co., Lonaconing, Md.; the Antietam Electric Light & Power Co., and the Midland Electric Light Co., operating at Antietam, Md., and vicinity. In connection with the merger, it is purposed to make extensions for increased power facilities, including transmission line construction.

The Chesapeake & Ohio Railroad Co., Richmond, Va., is said to be planning the rebuilding of the engine house, with repair facilities, at its local yards, recently destroyed by fire, with loss reported at close to \$45,000 including equipment.

Pacific Coast

SAN FRANCISCO, Aug. 4.

THE Pacific Can Co., San Francisco, will erect a plant at Williams Avenue in the Bay View district in the near future. The estimated cost will be \$1,000,000. It will have 60,000 sq. ft. of floor space, and will occupy three acres or 129,000 sq. ft. It is expected that the new plant will be in operation about Nov. 15. It will make a complete line of packers' cans, and a general line including plain, decorative and sanitary cans. The San Francisco plant is No. 1 of four proposed by the company. In addition there will be plant No. 2 at San Jose, Cal., plant No. 3 at Sacramento, Cal., and plant No. 4 at Provo, Utah. E. F. Euphrat is president of the company, A. W. Middleton is vice-president, and W. H. Sheldon is secretary.

Plans are complete for a pulp and paper mill to be built for the Northwest Pulp & Paper Co. at Astoria, Ore., to cost from \$1,000,000 to \$1,500,000. The plant will include the latest in all types of machinery, among which will be a 150-ton Jenssen acid system, five large sulphite digesters, pulp drying equipment, steam reservoirs and high pressure boilers and generators for the power. B. T. McBain, Oregonian Building, Portland, is general manager, and Henry M. Ford will be chief construction engineer.

Plans have been filed by the Spears-Wells Machinery Co., Ninth and Cedar Streets, Oakland, Cal., for a new one-story addition for machine shop and other service, reported to cost about \$18,000.

The Edison Electric Appliance Co., Ontario, Cal., manufacturer of electrical appliances for domestic service, has completed negotiations for the purchase of a tract of adjoining property, totaling about 23,000 sq. ft., and will use as a site for new additions, estimated to cost close to \$150,000 with equipment. The program is expected to be started late in the present year or early in 1928. Headquarters of the company are at 5660 Taylor Street, Chicago. E. H. Richardson is manager at the Ontario works.

The Zellerbach Corporation, 34 Battery Street, San Francisco, has plans maturing for a new mill for the production of kraft papers in the vicinity of Port Townsend, Puget Sound district, Wash. It will consist of several units, with power substation, machine shop and auxiliary structures, estimated to cost \$2,500,000 with machinery. The company is disposing of a preferred stock issue of 30,000 shares, a portion of the proceeds to be used for the new plant operation. E. M. Mills is vice-president.

The Astoria Foundry Co., Astoria, Ore., plans the rebuilding of the portion of its foundry destroyed by fire, July 29. An official estimate of loss has not been announced.

J. M. Womack and C. C. McIntosh, San Fernando, Cal., local representatives for the Ford automobile, are having plans prepared for a one-story service, repair and garage building, 100 x 135 ft., at the Brand Boulevard and Pico Street, reported to cost about \$70,000 with equipment. Alexander Shaw, 8743 Saugus Street, San Fernando, is architect.

The Breeze Wild Aircraft Co., Alameda, Cal., recently formed by Capt. C. Thompson, Alameda, and associates, is planning the construction of a local plant for the manufacture of monoplanes and other aircraft. It is understood that the initial works will be devoted largely to assembling. The company also purposes to establish a local airport, with hangars, repair shops, etc., as well as a training school for aviators. A site has been selected. The entire project will cost close to \$250,000.

The City Council, Bellingham, Wash., plans the installation of pumping machinery, power equipment, and other mechanical equipment in connection with proposed extensions and improvements in the municipal waterworks, for which a bond issue of \$250,000 is being arranged.

The Board of Education, Union High School District, Huntington Park, Cal., will construct a one and two-story vocational shop unit, 67 x 122 ft., in connection with new buildings at the local high school. The shop structure is estimated to cost about \$50,000. Work will begin at an early date. George M. Lindsey, Union Insurance Building, Los Angeles, is architect.

The J. L. Latture Equipment Co., Portland, Ore., representative in Oregon, Washington and Idaho of the Climax Engineering Co., Clinton, Iowa, has removed its offices and warehouse to 312-314 East Madison Street.

Foreign

AN improved British demand for American machine tools, particularly special machines for the automotive industry, has been evident lately, but sales of lathes, drill presses and other heavy tools have been slow, according to a report received by the Industrial Machinery Division, Department of Commerce, from Commercial Attaché William L. Cooper, London.

Bids are being asked by the New Zealand Government Railways, Wellington, N. Z., until Nov. 24, for an electric crane, electric-operated tilting furnace and auxiliary equipment.

The Municipal Council, Osaka, Japan, has plans under way for the construction of a rapid transit railway system about 33 miles long, of which approximately 20 miles will be elevated and the remainder underground. The project will include shops, electrical stations for power supply, electric railway equipment and construction machinery and is expected to require a number of years for completion. It is estimated to cost approximately \$81,150,000. Information at the office of the Bureau of Foreign and Domestic Commerce, Washington, reference Japan No. 248,735. Also, at the office of the American Consulate, Kobe, Japan, E. E. Dickover, consul.

The Government of Spain, Madrid, is considering a project for the conversion of former ammunition plants for the manufacture of other products; the factories have been idle for a number of years past. It is purposed to remodel and equip the small arms plant at Seville for the production of typewriting machines and parts; the small arms plant at Oviedo, Trubia, for a plant for the manufacture of automobiles and parts, with installation of improved equipment; and a small arms factory at Toledo for a plant for the manufacture of razor blades. It is understood that concessions will be granted for the operation of the different plants, under Government direction.

The Government of Austria, Vienna, is considering a report recently tendered by engineers, for railway electrification of the lines between Vienna and Salzburg, Vienna and Graz, and Schwarzach-St. Veit to Millstatt (Tauern Railway), totaling about 968 miles. The project will be a continuance of an electrification program started in 1920; the estimated cost of the new work is placed at close to \$40,000,000, including new electric generating plants and additions to present power stations. The previous electrification work is scheduled for completion in 1928, and it is likely that the new program will be started prior to that time.

The South American Gulf Oil Co., 21 State Street, New York, has concluded an agreement with the Colombia Syndicate for a lease of about 700,000 acres of oil lands in Colombia. It is proposed to carry out a development program for new wells, including the installation of drilling machinery, power equipment, pipe lines, storage and distributing facilities, etc.

Canada

TORONTO, Aug. 8.

WHILE there was no apparent improvement in machine-tool sales for the week, business continues satisfactory. Inquiries and orders for single tools are good, but business for the week was confined chiefly to this class of orders. Some inquiries are making their appearance in which from half a dozen to a dozen tools are involved, but it is not expected that these orders will be closed for a month or six weeks. Demand for equipment and machinery in connection with new industrial undertakings was active throughout July and some good orders are pending. Rebuilt and second hand tools are moving freely, while small tool sales have been active of late.

At the annual meeting of the Ontario Steel Products it was announced that the company is contemplating considerable expenditure toward further improvements of the Gananoque, Ont., plant.

The report of the Hydro Electric Power Commission of Ontario on the proposal for an auxiliary electric steam power plant, control heating plant and coking and gas plant at Toronto, Ont., has been submitted to the Board of Control and referred to the heads of departments for consideration with power to call for expert advice if such is deemed necessary.

Plans are being prepared by B. H. Prack, 42 James Street North, Hamilton, Ont., and bids are being called to close Aug. 19, for the erection of a \$150,000 addition to the plant of the Canadian Goodrich Co., Ltd., 521 King Street West, Kitchener, Ont.

The By-Products Coke Ovens, Ltd., Hamilton, Ont., have let contract to Semet-Solvay Engineering Co., 40 Rector Street, New York, for erection of \$400,000 benzol plant at Hamilton.

Extensive alterations to an old manufacturing plant at the foot of Atlantic Avenue, Toronto, Ont., are planned by the Metallic Roofing Co. of Canada, Ltd., now located at 1194 King Street West. Machinery will be moved from the King

street property while some additional equipment will also be purchased. G. G. Complin is general manager.

The Canadian Westinghouse Co., Hamilton, Ont., has started work on several plant additions.

Gordon Lefebvre, general manager General Motors of Canada, Ltd., Oshawa, Ont., announced the award of three contracts for extensions to the local plant of the company, aggregating \$400,000.

The Chatham Malleable Steel Co., Ltd., Chatham, Ont., is contemplating a large addition to its plant.

The Standard Tube Co., manufacturers of wire fencing, butted tubing, etc., Woodstock, Ont., will start work at an early date on an addition. J. H. Hasack is manager.

NEW TRADE PUBLICATIONS

Roller Bearings.—Hyatt Roller Bearing Co., Newark, N. J. Profusely illustrated folder devoted to representative installations and performance of the company's heavy-duty bearings with particular respect to steel mill use.

Heating Equipment.—American Blower Co., 6000 Russell Street, Detroit. Circular introducing a smaller size of the company's Venturafin heater which has just been placed on the market. The product is designed to give uniform heating to stores, small factories, garages, offices and other small commercial units.

Tumbling Mills.—Whiting Corporation, Harvey, Ill. Bulletin 183, enumerating the various features of the company's new tumbling mill. Particular emphasis is laid on the new type of door clamps which allow the door to be removed rapidly and easily, at the same time providing strength and rigidity.

Safety Circuit Devices.—Crouse-Hinds Co., Syracuse, N. Y. Bulletin G-3, providing detailed description and specifications of GCE groundulets; bulletin G-5, briefly listing and illustrating groundulets and other types of safety circuit devices manufactured by the company; bulletin G-4, entitled "Grounding for Safety," a discussion of the development in grounding systems during recent years.

Blue Print Machinery.—C. F. Pease Co., 813 North Franklin Street, Chicago. Catalog M-27, 96 pages, giving full descriptions of blue printing machinery, blue print papers and drafting room furniture manufactured by the company. The catalog is adequately indexed and contains many illustrations.

Asbestos Building Materials.—Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa. Catalog of 40 pages, dealing with asbestos shingles, roofing tile, corrugated sheets, asbestos imitation tiling and asbestos lumber. Instructions and diagrams are provided for aid in applying the various types of materials and also tables of quantities required, weights, etc.

Power Press Equipment.—Cleveland Punch & Shear Works Co., Cleveland. Folder illustrating and briefly describing the types of power presses and equipment manufactured by the company.

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